UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:

November 04, 2004

Diane M. Pezanoski
Deputy Corporation Counsel
Department of Law
Regulatory and Aviation Litigation Division
Rm. 900
30 North LaSalle Street
Chicago, Illinois 60602-2850

Re: Model Administrative Order of Consent for a Remedial Investigation and Feasibility Study

Ms. Pezanoski,

This is in response to an action item evolved from October 29, 2004 meeting with the Ms. Marcia Jeminez in which the Lake Calumet Cluster Site cleanup strategies were discussed. The City asked the U.S. Environmental Protection Agency (U.S. EPA) to prepare a draft Administrative Order of Consent (AOC) for Remedial Investigation and Feasibility Study (RI/FS) for the Potentially Responsible Parties (PRPs) for the November 8, 2004 meeting. After discussing this with our attorney, we concluded that there was not enough time to prepare a draft AOC before November 8, 2004.

However, we have enclosed a copy of a model "Administrative Order of Consent for a Remedial Investigation and Feasibility Study"for the City's review in order to familiarize with the content of a typical RI/FS AOC and Scope of Work that is included as an attachment in the document. As discussed at the October 29th meeting, the Statement of Work in the model is a comprehensive list for a site that is in the early stages of cleanup process. Given that much of the field work on the Cluster Site has been conducted and evaluated, U.S. EPA anticipates that the additional remedial investigation will be streamlined to fill in the missing gaps in the data for the Cluster Site.

If you have further questions regarding the RI/FS AOC and the Scope of Work please call me at (312) 886-1995.

Sincerely,

Kyle E. Rogers

Kyle E. Rogers
Remedial Project Manager

Steve,
Review - I'm thinking we should delete the sections with * marks
Kyle

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5

IN THE MATTER OF: [Site Name] [City or Town, County, State]	ADMINISTRATIVE ORDER ON CONSENT FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY
[Names of Respondents (if many, reference attached list)],	U.S. EPA Region 5 CERCLA Docket No. ____
Respondents	Proceeding Under Sections 104, 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604, 9607 and 9622.

REGIONAL MODEL RI/FS ADMINISTRATIVE ORDER ON CONSENT

(October, 2003)

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This updated Model RI/FS Administrative Order on Consent is based on the August 2003 Headquarters Draft Model RI/FS Administrative Order on Consent with a few Regional specific changes.

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This model and any internal procedures adopted for its implementation and use are intended solely as guidance for employees of the U.S. Environmental Protection Agency. They do not constitute rulemaking by the Agency and may not be relied upon to create a right or benefit, substantive or procedural, enforceable at law or in equity, by any person. The Agency may take action at variance with this model or its internal implementing procedures.

TABLE OF CONTENTS

[NOTE: Appendices may also be listed in this Table of Contents.]

ADMINISTRATIVE ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY
[insert if applicable, "Operable Unit No.____"]

I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Order on Consent ("Order") is entered into voluntarily by the United States Environmental Protection Agency ("U.S. EPA") and **[insert names or attach list of Respondents]**, ("Respondents"). The Order concerns the preparation and performance of a remedial investigation and feasibility study ("RI/FS") **[insert if applicable "for the operable unit consisting of (description of operable unit(s)]** at the **[insert Site name]** located at **[insert address or descriptive location of the Site]** ("Site") and the reimbursement for future response costs incurred by U.S. EPA in connection with the RI/FS **[insert if applicable, "as well as past response costs"]**.[1]

2. This Order is issued under the authority vested in the President of the United States by Sections 104, 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9604, 9607 and 9622 ("CERCLA"). This authority was delegated to the Administrator of U.S. EPA on January 23, 1987, by Executive Order 12580, 52 Fed. Reg. 2926 (Jan. 29, 1987), and further delegated to Regional Administrators on May 11, 1994, by U.S. EPA Delegation Nos. 14-14-C and 14-14-D. This authority was further redelegated by the Regional Administrator, U.S. EPA, Region 5 to the Director, Superfund Division, U.S. EPA, Region 5 by U.S. EPA Delegation Nos. 14-14-C and 14-14-D on May 2, 1996.

3. In accordance with Section 104(b)(2) and Section 122(j)(1) of CERCLA, 42 U.S.C. §§ 9604(b)(2) and 9622(j)(1), U.S. EPA notified the **[insert the relevant Federal and or state natural resource trustee(s)]** on _____, 20__, of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to the natural resources under Federal trusteeship. In accordance with Section 121(f)(1)(F), U.S. EPA has notified the State of _____ (the "State") on _____, 20__ of negotiations with potentially responsible parties regarding the implementation of the remedial investigation and feasibility study for the Site.

4. U.S. EPA and Respondents recognize that this Order has been negotiated in good faith

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[1]This model assumes that Future Response Costs (as defined in Paragraph 11) are being paid under the Order and provides language for recovery of Past Response Costs as well. If Past Response Costs are not included within the scope of the Order, do not include the following provisions: 1) Paragraph 11 - "Interim Response Costs" definition; "Past Response Costs" definition; the bracketed insert pertaining to Past Response Costs in the "Future Response Costs" definition; 2) Paragraph 79 (Payment for Past Response Costs); 5) Paragraph 83, Alternative 1 (Covenant Not to Sue by EPA); 6) optional section on Public Comment which follows Section XXVII); 7) the bracketed optional section on Attorney General Approval following Section XXVIII; and 8) the bracketed [Past Response Costs] in three provisions of the Order: Paragraph 85(b) (Reservation of Rights by EPA); Paragraph 87 (Covenant not to Sue by Respondents); and Paragraph 94 ("matters addressed" definition).

and that the actions undertaken by Respondents in accordance with this Order do not constitute an admission of any liability. Respondents do not admit, and retain the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Order, the validity of the findings of fact, conclusions of law and determinations in Sections V and VI of this Order. Respondents agree to comply with and be bound by the terms of this Order and further agree that they will not contest the basis or validity of this Order or its terms.

II. PARTIES BOUND

5. This Order applies to and is binding upon U.S. EPA and upon Respondents and their agents, [heirs,] successors and assigns. Any change in ownership or corporate status of a Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter such Respondent's responsibilities under this Order.

6. Respondents are jointly and severally liable for carrying out all activities required by this Order. In the event of the insolvency or other failure of any one or more Respondents to implement the requirements of this Order, the remaining Respondents shall complete all such requirements.

7. Respondents shall ensure that their contractors, subcontractors, and representatives receive a copy of this Order and comply with this Order. Respondents shall be responsible for any noncompliance with this Order.

8. Each undersigned representative of Respondents certifies that he or she is fully authorized to enter into the terms and conditions of this Order and to execute and legally bind the Respondents to this Order.

III. STATEMENT OF PURPOSE

9. In entering into this Order, the objectives of U.S. EPA and Respondents are: (a) to determine the nature and extent of contamination and any current or potential threat to the public health, welfare, or the environment posed by the release or threatened release of hazardous substances, pollutants or contaminants at or from the Site and to collect sufficient data for developing and evaluating effective remedial alternatives by conducting a Remedial Investigation ("RI") as more specifically set forth in the Statement of Work ("SOW") attached as Attachment A to this Order; (b) to identify and evaluate remedial alternatives that protect human health and the environment by preventing, eliminating, reducing or controlling any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site, by conducting a Feasibility Study ("FS") as more specifically set forth in the Statement of Work ("SOW") in Attachment A to this Order; and (c) to recover response and oversight costs incurred by U.S. EPA with respect to this Order **[insert if applicable, "including past response costs"]**.

10. The Work conducted under this Order is subject to approval by U.S. EPA and shall provide all appropriate and necessary information to assess site conditions and evaluate

alternatives to the extent necessary to select a remedy that will be consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300 ("NCP"). Respondents shall conduct all Work under this Order in compliance with CERCLA, the NCP and all applicable U.S. EPA guidances, policies, and procedures.

IV. DEFINITIONS

[NOTE: The following list of definitions may be reduced or expanded as appropriate.]

11. Unless otherwise expressly provided herein, terms used in this Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Order or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

a. "ARARs" mean all applicable local, state, and federal laws and regulations, and all "applicable requirements" or "relevant and appropriate requirements" as defined at 40 C.F.R. § 300.5 and 42 U.S.C. § 9261(d).

b. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, *et seq.*

c. "Day" shall mean a calendar day. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

d. "Effective Date" shall be the effective date of this Order as provided in Section XXIX.

e. "EPA" or "U.S. EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

__. **["_____" shall mean the [insert name of State pollution control agency or environmental protection agency] and any successor departments or agencies of the State.]**

f. "Engineering Controls" shall mean constructed containment barriers or systems that control one of the following: downward migration, infiltration or seepage of surface runoff or rain; or natural leaching migration of contaminants through the subsurface over time. Examples include caps, engineered bottom barriers, immobilization processes, and vertical barriers.

g. "Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing plans, reports,

technical memoranda and other items pursuant to this Order, conducting community relations, providing technical assistance grants to community groups (if any), verifying the Work, or otherwise implementing, overseeing, or enforcing this Order, including but not limited to, payroll costs, contractor costs (including fees), travel costs, laboratory costs, ATSDR costs, the costs incurred pursuant to Paragraph 55 and 57 (costs and attorneys fees and any monies paid to secure access, including the amount of just compensation) **[, and]** Paragraph 41 (emergency response). Future Response Costs shall also include all Interim Response Costs **[if Past Response Costs are paid under the Order, insert, ", and all Interest on those Past Response Costs Respondents have agreed to reimburse under this Order that has accrued pursuant to 42 U.S.C. § 9607(a) during the period from [insert date identified in Past Response Costs definition] to the Effective Date of this Order."].**

[NOTE: If not seeking to recover Past Response Costs under this Order, delete the final sentence in the Future Response Costs definition and the "Interim Response Costs" definition.]

h. "Institutional controls" shall mean non-engineered instruments, such as administrative and/or legal controls, that help to minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land and/or resource use. Examples of institutional controls include easements and restrictive covenants, zoning restrictions, special building permit requirements, and well drilling prohibitions.

i. "Interest" shall mean interest at the rate specified for interest on investments of the U.S. EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

[NOTE: Include the following definition only if U.S. EPA is seeking to recover Past Response Costs under this Order.]

["Interim Response Costs" shall mean all costs, including direct and indirect costs, (a) paid by the United States in connection with the Site between **[insert date identified in Past Response Costs definition]** and the Effective Date, or (b) incurred prior to the Effective Date, but paid after that date.]

j. "NCP" or "National Contingency Plan" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

[___. "Operable Unit ___" shall mean [insert if applicable a description of the operable unit or units covered by the Order, referencing any attachments showing or describing the operable unit(s) in detail.]

k. "Order" shall mean this Administrative Order on Consent, the SOW, all appendices attached hereto (listed in Section XXVII) and all documents incorporated by reference into this document including without limitation U.S. EPA-approved submissions. U.S. EPA-approved submissions (other than progress reports) are incorporated into and become a part of the Order upon approval by U.S. EPA. In the event of conflict between this Order and any appendix, this Order shall control.

l. "Paragraph" shall mean a portion of this Order identified by an Arabic numeral. **[Insert if applicable, References to paragraphs in the SOW will be so identified (for example, "SOW paragraph 15").**

m. "Parties" shall mean U.S. EPA and Respondents.

n. "Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with the Site through **[insert date of most recent cost update]**, plus Interest on all such costs which has accrued pursuant to 42 U.S.C. § 9607(a) through such date.

o. "RCRA" shall mean the Resource Conservation and Recovery Act, also known as the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901, *et seq.*

p. "Respondents" shall mean **[insert names of Respondents] [insert if applicable "those Parties identified in Appendix __"]**.

q. "RI/FS Planning Documents shall mean the Work Plan/Field Sampling Plan, Quality Assurance Project Plan and Health and Safety Plan **[insert documents referenced in the SOW]**.

r. "Section" shall mean a portion of this Order identified by a Roman numeral. **[Insert if applicable, References to sections in the SOW will be so identified; for example as "SOW Section V."]**

s. "Site" shall mean the _____ Superfund Site, **located at [insert address or description of location] in [insert name of City, County, State] and depicted generally on the map attached as Appendix B** and nearby areas where hazardous substances, pollutants or contaminants have or may have come to be located from **[insert address or description of location]** or from former operations at **[insert address or description of location].**

t. "State"shall mean the State of **[insert name of State.]**

u. "Statement of Work" or "SOW" shall mean the Statement of Work for development of a RI/FS for **[insert "the Site" or "operable unit(s) ____]**, as set forth in Appendix A to this Order. The Statement of Work is incorporated into this Order and is an

enforceable part of this Order as are any modifications made thereto in accordance with this Order.

v. "Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and (4) any "hazardous material" under **[insert appropriate State statutory citation]**.

w. "Work" shall mean all activities Respondents are required to perform under this Order, except those required by Section XIV (Retention of Records).

V. FINDINGS OF FACT

[NOTE: Because Findings of Fact are Site-specific, no model language is provided. However, suggested topics are provided below for some findings. Facts should be presented concisely, accurately, and logically. Provide enough information in this Section for the Order to stand on its own. The Findings of Fact need to establish and justify the Conclusions of Law set forth in this Order. Regions should include a discussion of the following points:

12. Identification of the Site with the name, location and description (including characteristics of the site and a description of the surrounding areas, i.e., commercial/industrial/residential area, nearest public supply wells, nearby water bodies, potentially sensitive ecological areas);

13. A brief history of the Site including Site ownership and operations (process or other activity producing waste, nature of wastes produced);

14. Information that there are hazardous substances at the Site by listing specific chemicals found at the Site, and their locations, concentrations and quantities where know;

15. Description of actual and/or potential release (i.e. leaking drums, contaminated soils, etc.) and contaminant migration pathways, and possible or known routes of exposure, making clear that these are not exclusive;

16. Identification of the populations at risk; both human and non-human;

17. Health/environmental effects of some major contaminants;

18. Whether the Site is on the [proposed] National Priorities List. Reference CERCLA Section 105 and the Federal Register in which notice of listing appeared;

"The _____ Site was [listed on] [proposed for inclusion on] the National

Priorities List ("NPL") pursuant to CERCLA Section 105, 42 U.S.C. § 9605, on _____ (insert month, day and year)."

19. Identification of Respondents, i.e., name/business; legal status (i.e., corporation, partnership, sole proprietor, trust, individual, federal, state or local government, etc.), general categories of Respondents' liability under CERCLA Section 107(a) and connection with the Site, e.g., owner or operator of hazardous waste site, or person who arranged for disposal or treatment of, or transporter of hazardous substances found at the Site;

20. Identification of prior response and enforcement actions, including investigations and assessments, if any, taken at the Site, by U.S. EPA or the State.

[NOTE: If the Order compromises a claim, but Attorney General approval is not required because the total response costs are not expected to exceed $500,000, excluding interest, insert a finding of fact stating that "The Regional Administrator of U.S. EPA Region ___, or [his/her] delegatee, has determined that the total past and projected response costs of the United States at or in connection with the Site will not exceed $500,000, excluding interest."]

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth above, and the Administrative Record in this matter, U.S. EPA has determined that:

21. The **[insert name]** Site is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

22. The contamination **[insert the names of the particular hazardous substances if desired]** found at the Site, as identified in the Findings of Fact above, includes [a] "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14). **[insert if appropriate, "or constitutes "any pollutant or contaminant" that may present an imminent and substantial danger to public health or welfare under Section 104(a)(1) of CERCLA."]**

23. The conditions described in **[insert if appropriate, "Paragraphs _ of"]** the Findings of Fact above constitute an actual and/or threatened "release" of a hazardous substance from the facility as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

24. Each Respondent is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21). **[Provide names of Respondents if desired.]**

25. Respondents are responsible parties under Sections 104, 107 and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607 and 9622. **[Regions should specify each category of liability under Section 107. For example:**

a. Each Respondent is either a person who generated the hazardous substances found at the Site, a person who at the time of disposal of any hazardous substances owned or operated the Site, or a person who arranged for disposal or transport for disposal of hazardous substances at the Site. Each Respondent therefore may be liable under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

b. Respondents [insert names] are the "owner(s)" and/or "operator(s)" of the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1).

c. Respondents [insert names] were the "owners" and/or "operators" of the facility at the time of disposal of hazardous substances at the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2).

d. Respondents [insert names] arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment of hazardous substances at the facility, within the meaning of Section 107(a)(3) of CERCLA, 42 U.S.C. § 9607(a)(3).

e. Respondents [insert names] accept or accepted hazardous substances for transport to the facility selected by Respondents, within the meaning of Section 107(a)(4) of CERCLA, 42 U.S.C. § 9607(a)(4).]

26. The actions required by this Order are necessary to protect the public health, welfare or the environment, are in the public interest, 42 U.S.C. § 9622(a), are consistent with CERCLA and the NCP, 42 U.S.C. §§ 9604(a)(1), 9622(a), and will expedite effective remedial action and minimize litigation, 42 U.S.C.§ 9622(a).

27. U.S. EPA has determined that Respondents are qualified to conduct the RI/FS within the meaning of Section 104(a) of CERCLA, 42 U.S.C.§ 9604(a), and will carry out the Work properly and promptly, in accordance with Sections 104(a) and 122(a) of CERCLA, 42 U.S.C. §§ 9604(a) and 9622(a), if Respondents comply with the terms of this Order.

VII. ORDER

28. Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for this Site, it is hereby Ordered and Agreed that Respondents shall comply with all provisions of this Order, including, but not limited to, all attachments to this Order and all documents incorporated by reference into this Order.

VIII. DESIGNATION OF CONTRACTORS AND PROJECT COORDINATORS

29. Selection of Contractors, Personnel.

a. All Work performed under this Order shall be under the direction and supervision of qualified personnel. Within 30 days of the Effective Date of this Order, and before the Work outlined below begins, Respondents shall notify U.S. EPA in writing of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants and laboratories to be used in carrying out such Work. With respect to any proposed contractor, Respondents shall demonstrate that the proposed contractor has a quality system which complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)," (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by U.S. EPA. The qualifications of the persons undertaking the Work for Respondents shall be subject to U.S. EPA's review, for verification that such persons meet minimum technical background and experience requirements. If Respondents fail to demonstrate to U.S. EPA's satisfaction that Respondents are qualified to perform properly and promptly the actions set forth in this Order, U.S. EPA may take over the work required by this Order.

b. If U.S. EPA disapproves in writing of any person(s)' technical qualifications, Respondents shall notify U.S. EPA of the identity and qualifications of the replacement(s) within 30 days of the written notice. If U.S. EPA subsequently disapproves of the replacement(s), U.S. EPA reserves the right to terminate this Order and to conduct a complete RI/FS, and to seek reimbursement for costs and penalties from Respondents. During the course of the RI/FS, Respondents shall notify U.S. EPA in writing of any changes or additions in the personnel used to carry out such Work, providing their names, titles, and qualifications. U.S. EPA shall have the same right to disapprove changes and additions to personnel as it has hereunder regarding the initial notification.

30. Within ___ days after the Effective Date, Respondents shall designate a Project Coordinator who shall be responsible for administration of all actions by Respondents required by this Order and shall submit to U.S. EPA the designated Project Coordinator's name, address, telephone number, and qualifications. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during Site Work. U.S. EPA retains the right to disapprove of the designated Project Coordinator. If U.S. EPA disapproves of the designated Project Coordinator, Respondents shall retain a different Project Coordinator and shall notify U.S. EPA of that person's name, address, telephone number and qualifications within ___ days following U.S. EPA's disapproval. Respondents shall have the right to change their Project Coordinator subject to U.S. EPA's right to disapprove. Respondents shall notify U.S. EPA ___ days before such change is made. The initial notification may be made orally, but shall be promptly followed by a written notification.

31. U.S. EPA has designated _____ **[insert name of U.S. EPA's Project Coordinator]** of the Superfund Division, Region 5 as its Project Coordinator. U.S. EPA will notify Respondents of a change in its designation of the Project Coordinator. Except as otherwise provided in this Order, Respondents shall direct all submissions required by this Order to:

[Name]
Remedial Project Manager
U.S. EPA, Superfund Division
Mail Code SR-6J
77 West Jackson
Chicago, Illinois 60604-3590

Respondents are encouraged to make their submissions to U.S. EPA on recycled paper (which includes significant post-consumer waste paper content where possible) and using two-sided copies. Respondents shall make submissions electronically according to U.S. EPA Region 5 specifications. Receipt by Respondents' Project Coordinator of any notice or communication from U.S. EPA relating to this Order shall constitute receipt by Respondents. Documents to be submitted to the Respondents shall be sent to:

[Name]
Organization
Address

32. U.S. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager ("RPM") and On-Scene Coordinator ("OSC") by the NCP. In addition, U.S. EPA's Project Coordinator shall have the authority consistent with the NCP to halt any Work required by this Order, and to take any necessary response action when s/he determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of the U.S. EPA Project Coordinator from the area under study pursuant to this Order shall not be cause for the stoppage or delay of Work.

33. U.S. EPA and Respondents shall have the right, subject to Paragraph 30, to change their respective Project Coordinator. Respondents shall notify U.S. EPA ___days before such a change is made. The initial notification by either party may be made orally, but shall be promptly followed by a written notice.

34. U.S. EPA shall arrange for a qualified person to assist in its oversight and review of the conduct of the RI/FS, as required by Section 104(a) of CERCLA, 42 U.S.C. § 9604(a). Such person shall have the authority to observe Work and make inquiries in the absence of U.S. EPA, but not to modify the RI/FS Planning Documents or other work plans.

IX. WORK TO BE PERFORMED

35. a. Respondents shall conduct the RI/FS in accordance with the provisions of this

Order, the SOW, CERCLA, the NCP, U.S. EPA guidance related to remedial investigations and feasibility studies including, but not limited to, the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive # 9355.3-01), "Guidance for Data Useability in Risk Assessment" (OSWER Directive #9285.7-05), Risk Assessment Guidance for Superfund (RAGS), Volume I - Human Health Evaluation Manual (Part A), Interim Final (EPA-540-1-89-002), OSWER Directive 9285.7-01A, December 1, 1989; and Risk Assessment Guidance for Superfund (RAGS), Volume I - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments), Interim, (EPA 540-R-97-033), OSWER Directive 9285.7-01D, January 1998, **[insert, reference to any applicable Presumptive Remedy Guidance]** guidances referenced in the SOW, and any RI/FS related guidance subsequently issued by U.S. EPA.

b. In the RI and FS Reports, Respondents shall address the factors required to be taken into account in Section 121 of CERCLA, 42 U.S.C. § 9621, and Section 300.430 of the NCP, 40 C.F.R. § 300.430. The RI shall characterize the geology and hydrogeology of the Site, determine the nature and extent of hazardous substances, pollutants or contaminants at or from the Site, and characterize all ecological zones including terrestrial, riparian, wetlands, aquatic/marine, and transitional. Respondents shall prepare, for inclusion with the RI Report, a determination of the nature and extent of the current and potential threat to the public health or welfare or the environment posed by the release or threatened release of any hazardous substances, pollutants, or contaminants at or from the Site, including a "Baseline Human Health Risk Assessment" and "Baseline Ecological Risk Assessment". In the FS Report, Respondents shall determine and evaluate (based on treatability testing, where appropriate) alternatives for remedial action that protect human health and the environment by recycling waste or by eliminating, reducing and/or controlling risks posed through each pathway at the Site. In the FS Report, the Respondents shall evaluate a range of alternatives including but not limited to those alternatives described in 40 C.F.R. § 300.430(e) and remedial alternatives that utilize permanent solutions and alternative treatment technologies or resource recovery technologies. The FS Reports shall include a detailed analysis of individual alternatives against each of the nine evaluation criteria in 40 C.F.R. § 300.430(e)(9)(iii) and a comparative analysis that focuses upon the relative performance of each alternative against the nine criteria in 40 C.F.R. § 300.430(e)(9)(iii). Respondents shall submit to U.S. EPA **[insert "and the State" if applicable]** __ copies of all plans, reports, submittals and other deliverables required under this Order, the SOW and the RI/FS Planning Documents in accordance with the approved schedule for review and approval pursuant to Section X (U.S. EPA Approval of Plans and Other Submissions). Upon request by U.S. EPA, Respondents shall submit in electronic form all portions of RI and FS Reports, any report or other deliverable Respondents are required to submit pursuant to provisions of this Order, including the SOW. Upon approval by U.S. EPA, all deliverables under this Order, including the SOW, shall be incorporated into and become enforceable under this Order.

36. Community Involvement Plan **[insert the following for Superfund Alternative Sites "and Technical Assistance Plan"]** U.S. EPA will prepare a Community Involvement Plan, in accordance with U.S. EPA guidance and the NCP. As requested by U.S. EPA,

STATEMENT OF WORK
FOR A REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
AT THE LAKE CALUMET CLUSTER SITE
CHICAGO, ILLINOIS

I. PURPOSE

This Statement of Work (SOW) sets forth the requirements for conducting a Remedial Investigation and Feasibility Study (RI/FS) at the Lake Calumet Cluster Site (Site) in southeastern Chicago, Illinois. The Site includes the property immediately bounded by Land & Lake #3 landfill to the west, Paxton II landfill on the northwestern corner, Paxton I landfill to the north, the Norfolk Southern Railroad to the east, and 122nd Street on the south and any nearby areas where hazardous substances, pollutants or contaminants from the property or from former operations at the property have or may have come to be located. The RI Report shall fully evaluate the nature and extent of hazardous substances, pollutants or contaminants at and/or from the Site. The RI Report shall also assess the risk which these hazardous substances, pollutants or contaminants present for human health and the environment. The RI Report shall provide sufficient data to develop and evaluate effective remedial alternatives. The FS Report shall evaluate alternatives for addressing the impact to human health and the environment from hazardous substances, pollutants or contaminants at the Site.

The Respondents shall prepare and complete the RI and FS Reports in compliance with the Administrative Order on Consent (AOC), SOW, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 C.F.R. Part 300) as amended and all requirements and guidance for RI/FS studies and reports, including but not limited to U.S. EPA Superfund *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA/540/G-89/004, October 1988) (RI/FS Guidance), and any other guidance that the United States Environmental Protection Agency (U.S. EPA) uses in conducting or submitting deliverables for a RI/FS. Exhibit B sets forth a partial list of guidance used by U.S. EPA for a RI/FS.

If a site fits the presumptive remedy model and the Region believes that a presumptive remedy may be used at the site then guidance documents related to presumptive remedies can be also mentioned and listed in this section.

The Respondent[s] shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RI/FS at the Site, except as otherwise specified herein.

II. DOCUMENT REVIEW

The Respondent[s] shall submit all documents or deliverables required as part of this SOW to the U.S. EPA, with a copy to the Illinois Environmental Protection Agency (IEPA), for review and approval by U.S. EPA. After review of any plan, report or other item which is required to be

submitted for approval pursuant to this AOC, U.S. EPA, **after reasonable opportunity for review and comment by the State Agency**, may: (a) approve, in whole or in part, the submission; (b) approve the submission upon specified conditions; (c) modify the submission to cure the deficiencies; (d) disapprove, in whole or in part, the submission, directing that Respondents modify the submission; or (e) any combination of the above. However, U.S. EPA will not modify a submission without first providing Respondents at least one notice of deficiency and opportunity to cure within ___ days. (See Section X of the AOC for procedures concerning U.S. EPA Approval of Plans and Other Submissions)

III. SCOPE

Respondent[s] shall complete the following tasks as part of this RI/FS:

Task 1: Project Scoping and RI/FS Planning Documents
Task 2: Community Relations **[if an SAS Site "and Technical Assistance Plan"]**
Task 3: Site Characterization
Task 4: Remedial Investigation Report
Task 5: Treatability Studies
Task 6: Development and Screening of Alternatives (Technical Memorandum)
Task 7: Detailed Analysis of Alternatives (FS Report)
Task 8: Progress Reports

TASK 1: PROJECT SCOPING AND RI/FS PLANNING DOCUMENTS

1.1. Site Background

The Respondent[s] shall gather and analyze the existing Site background information and shall conduct a Site visit to assist in planning the scope of the RI/FS.

1.1. Collect and Analyze Existing Data

Before planning the RI/FS activities, the Respondent[s] shall thoroughly compile and review all existing Site data. Historical data shall be submitted electronically according to U.S. EPA Region 5 specifications. Existing site data includes presently available data relating to the varieties and quantities of hazardous substances, pollutants and contaminants at the Site, past disposal practices, the results of previous sampling activities, and U.S. EPA's air photo analysis of the Site. Examples of existing information about the Site includes: The Nature and Extent of Contamination at the Lake Calumet Cluster Site November 30, 1999; Comprehensive Site Investiagation Report Lake Calumet Cluster Site: Alburn, U.S. Drum and Unnamed Parcel Areas; Remedial Options Report Southeast Chicago Cluster Site Chicago, Illinois September 27, 2002; Human Health Risk Assessment Report Lake Calumet Cluster Site: Alburn, U.S. Drum, and Unnamed Parcel Areas Final Report Febuaray 2002; Ecological Risk Assessment Lake Calumet Cluster Sites Chicago, Illinois November 200: 1 ... **(examples: Previous Site Investigation Reports, Preliminary Assessment Reports, Site Inspection Reports, Focused**

Site Inspection Prioritization Reports, Site Team Evaluation Prioritization Report and additional information submitted to U.S. EPA by the owners).

1.2. RI/FS Planning Documents (Work Plan/Field Sampling Plan/QAPP)

1.2.1. General Requirements

Within [30] calendar days after the effective date of the AOC, the Respondent[s] shall submit draft RI/FS Planning Documents (including the Work Plan/Field Sampling Plan, Quality Assurance Project Plan, and Health and Safety Plan) to U.S. EPA, with a copy to the IEPA, for review and approval by U.S. EPA.

The objective of the RI/FS Planning Documents is to develop an RI/FS strategy and general management plan that accomplishes the following:

- A remedial investigation that fully determines the nature and extent of the release or threatened release of hazardous substances, pollutants, or contaminants at and from the Site. In performing this investigation, the Respondent[s] shall gather sufficient data, samples, and other information to fully characterize the nature and extent of the contamination at the Site, to support the human health and ecological risk assessments, and to provide sufficient data for the identification and evaluation of remedial alternatives for this Site.

- A feasibility study that identifies and evaluates alternatives for remedial action to protect human health and the environment by preventing, eliminating, controlling or mitigating the release or threatened release of hazardous substances, pollutants, or contaminants at and from the Site.

When scoping the specific aspects of the project, the Respondent[s] shall meet with U.S. EPA to discuss all project planning decisions and special concerns associated with the Site.

The RI/FS Planning Documents shall include a detailed description of the tasks the Respondent[s] shall perform, the information needed for each task, a detailed description of the information the Respondent[s] shall produce during and at the conclusion of each task, and a description of the work products that the Respondent[s] shall submit to U.S. EPA and IEPA. This includes the deliverables set forth in this SOW; a schedule for each of the required activities consistent with the RI/FS Guidance and other relevant guidance; and a project management plan including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, requirements for submittal of electronic data, data format and backup data management), monthly reports to U.S. EPA and IEPA, and meetings and presentations to U.S. EPA and IEPA at the conclusion of each major phase of the RI/FS. The Respondent[s] shall refer to Appendix B of the RI/FS Guidance for a description of the required contents of the RI/FS Planning Documents.

The RI/FS Planning Documents shall include the preliminary objectives for the remedial action at the Site; preliminary potential state and federal ARARs (chemical-specific, location-specific and action-specific); a description of the Site management strategy developed by the Respondent[s] and U.S. EPA during scoping; a preliminary identification of remedial alternatives; and data needs for fully characterizing the nature and extent of the contamination at the site, assessing risks and developing and evaluating remedial alternatives. The RI/FS Planning Documents shall reflect coordination with treatability study requirements, if any. The RI/FS Planning Documents shall also include a process for and manner of refining and/or identifying additional Federal and State ARARs, and for preparing the human health and ecological risk assessments and the feasibility study.

1.2.2. Specific Requirements

The Respondent[s] shall prepare the RI/FS Planning Documents as described in "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," October, 1988 and shall include:

1.2.2.1. Site Background

The Site Background section shall include a brief summary of the Site location, description, physiography, hydrology, geology, demographics, ecological, cultural and natural resource features, Site history, description of previous investigations and responses conducted at the Site by local, state, federal, or private parties, and Site data evaluations and project planning completed during the scoping process.

The Site background section shall discuss areas of waste handling and disposal activities, the locations of existing groundwater monitoring wells, if any, and previous surface water, sediment, soil, groundwater, and air sampling locations. The Site Background section shall include a summary description of available data and identify areas where hazardous substances, pollutants or contaminants were detected and the detected levels. This includes the data in... **(Examples: Previous Site Investigation Reports, Preliminary Assessment Reports, Site Inspection Reports, Focused Site Inspection Prioritization Reports, Site Team Evaluation Prioritization Report and additional information submitted to U.S. EPA by the owners).** The Site Background section shall include tables displaying the minimum and maximum levels of detected hazardous substances, pollutants or contaminants in Site areas and media.

1.2.2.2 Work Plan/Field Sampling Plan

Respondents shall prepare the Work Plan/Field Sampling Plan (FSP) portion of the RI/FS Planning Documents to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet the Site-specific Data Quality Objectives as established in the Quality Assurance Project Plan (QAPP) and FSP. All sampling and analyses performed shall conform to U.S. EPA direction, approval, and guidance regarding sampling, quality assurance/quality control (QA/QC), data validation, and chain of

custody procedures. The Respondent[s] shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with U.S. EPA guidance.

Upon request by U.S. EPA, the Respondent[s] shall have such a laboratory analyze samples submitted by U.S. EPA for quality assurance monitoring. The Respondent[s] shall provide U.S. EPA with the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis. The Respondent[s] shall also ensure the provision of analytical tracking information consistent with OSWER Directive No. 9240.0-2B, *Extending the Tracking of Analytical Services to PRP-Lead Superfund Sites.*

Upon request by U.S. EPA, the Respondent[s] shall allow U.S. EPA or its authorized representatives to take split and/or duplicate samples of any samples collected by the Respondent[s] or their contractors or agents. The Respondent[s] shall notify U.S. EPA not less than 15 business days in advance of any sample collection activity. U.S. EPA shall have the right to take any additional samples that it deems necessary.

1.2.2.3. Data Gap Description/Data Acquisition

As part of the FSP, the Respondent[s] shall analyze the currently available data. The Respondent[s] shall identify those areas of the Site and nearby areas that require data and evaluation in order to define the extent of hazardous substances, pollutants or contaminants. This Section of the FSP shall include a description of the number, types, and locations of samples to be collected. The FSP shall include an environmental program to accomplish the following:

- Conduct Site Reconnaissance. The Respondent(s) shall conduct:
  - Site surveys including property, boundary, utility rights-of-way, and topographic information
  - Land Survey
  - Topographic Mapping
  - Field Screening

- Conduct Geological Investigations (Soils and Sediments). The Respondent(s) shall conduct geological investigations to determine the extent of hazardous substances, pollutants or contaminants in surface soils, subsurface soils and sediments at the Site. As part of this geological investigation Respondents shall:
  - Collect Surface Soil Samples
  - Collect Subsurface Soil Samples
  - Perform Soil Boring and Permeability Sampling
  - Collect Sediments Samples
  - Survey Soil Gases
  - Test Pit
  - Identify real-world horizontal, vertical, and elevation coordinates for all samples and site features in accordance with U.S. EPA Region 5 electronic data requirements

- Air Investigations. The Respondent(s) shall conduct air investigations to determine the extent of atmospheric hazardous substances, pollutants or contaminants at and from the Site, which shall include:
    - Collect Air Samples
    - Establish Air Monitoring Station

- Hydrogeological Investigations (Ground Water). The Respondent(s) shall conduct hydrogeological investigations of ground water to determine the horizontal and vertical distribution of hazardous substances, pollutants or contaminants in the groundwater and the extent, fate and transport of any groundwater plumes containing hazardous substances, pollutants or contaminants. The hydrogeological investigation shall include:
    - Install Well Systems
    - Collect Samples from Upgradient, Downgradient, Private and Municipal wells
    - Collect Samples During Drilling (e.g., HydroPunch or Equivalent)
    - Perform Hydraulic Tests (such as Pump Tests, Slug Tests and Grain Size Analyses)
    - Measure Ground-Water Elevations and determine horizontal and vertical sample locations in accordance with U.S. EPA Region 5 electronic data requirements
    - Modeling
    - Determine the direction of regional and local groundwater flow
    - Identify the local uses of groundwater including the number, location, depth and use of nearby private and municipal wells

- Conduct Hydrogeological Investigations (Surface Water). The Respondent(s) shall conduct hydrogeological investigations to determine the nature and extent of contamination of surface water from the Site. The hydrogeological investigation shall include:
    - Collect Samples
    - Measure Surface-Water Elevation

- Conduct Waste Investigation. The Respondent(s) shall characterize the waste materials at the Site. Respondent shall conduct the following activities as part of these waste investigations.
    - Collect Samples (Gas, Liquid, Solid)
    - Dispose of Derived Waste (Gas, Liquid, Solid)

- Conduct Geophysical Investigation. The Respondent(s) shall conduct geophysical investigations to delineate waste depths, thicknesses and volume; the elevations of the underlying natural soil layer and the extent of cover over fill areas including the following, as appropriate:
    - Surface Geophysical Activity [can just list these]
    - Magnetometer
    - Electromagnetic

- Ground-Penetrating Radar
- Seismic Refraction
- Resistivity
- Site Meteorology
- Cone Penetrometer Survey
- Remote Sensor Survey
- Radiological Investigation
- Test Pits, trenches and soil borings

- Conduct Ecological Investigation. The Respondent(s) shall conduct ecological investigations to assess the impact to aquatic and terrestrial ecosystems from the disposal, release and migration of hazardous substances, pollutants or contaminants at the Site including:
  - Wetland and Habitat Delineation
  - Wildlife Observations
  - Community Characterization
  - Endangered Species Identification
  - Biota Sampling and Population Studies

- Collect Contaminated Building Samples. The Respondent(s) shall collect contaminated building samples.

- Dispose of Investigation-Derived Waste. The Respondents shall characterize and dispose of investigation-derived wastes in accordance with local, state, and federal regulations as specified in the FSP (see the Fact Sheet, *Guide to Management of Investigation-Derived Wastes*, 9345.3-03FS (January 1992)).

- Evaluate and Document the Need for Treatability Studies. If the Respondent[s] or U.S. EPA identify remedial actions that involve treatment, the Respondent[s] shall include treatability studies as outlined in Task 5 of this SOW unless the Respondent[s] satisfactorily demonstrate to U.S. EPA that such studies are not needed. When treatability studies are needed, the Respondent[s] shall plan initial treatability testing activities (such as research and study design) to occur concurrently with Site characterization activities.

1.2.2.4. Quality Assurance Project Plan (QAPP)

The Respondents shall prepare a QAPP that is site specific and covers sample analysis and data handling for samples collected during the RI, based on the AOC and guidance provided by U.S. EPA. The Respondent[s] shall prepare the QAPP in accordance with "EPA Requirements of Quality Assurance Project Plans (QA/R-5)" (EPA/240/B-01/003, March 2001) and "EPA Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-02/009, December 2002).

The Respondent[s] shall demonstrate, in advance to U.S. EPA's satisfaction, that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and

analytical protocols for the chemicals of concern in the media sampled within detection and quantification limits consistent with both QA/QC procedures and data quality objectives (DQO) approved in the QAPP for the Site by U.S. EPA. The laboratory must have and follow an approved QA program. If a laboratory not in the Contract Laboratory Program is selected, methods consistent with CLP methods that would be used at this Site for the purposes proposed and QA/QC procedures approved by U.S. EPA shall be used. The Respondent[s] shall only use laboratories which have a documented Quality Assurance Program which complies with ANSI/ASQC E-4 1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995) and "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01-002, March 2001) or equivalent documentation as determined by U.S. EPA.

The Respondent[s] shall participate in a pre-QAPP meeting or conference call with U.S. EPA. The purpose of this meeting or conference call is to discuss QAPP requirements and obtain any clarification needed to prepare the QAPP.

1.2.2.4. Health and Safety Plan

The Respondent[s] shall prepare a Health and Safety Plan that conforms to its health and safety program and complies with the Occupational Safety and Health Administration (OSHA) regulations and protocols outlined in 29 C.F.R. Part 1910. The Health and Safety Plan shall be prepared in accordance with U.S. EPA's Standard Operating Safety Guide (PUB 9285.1-03, PB 92-963414, June 1992). The Health and Safety Plan shall include the 11 elements described in the RI/FS Guidance such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and Site control. U.S. EPA does not "approve" the Respondent's [s']Health and Safety Plan, but rather U.S. EPA reviews it to ensure that all the necessary elements are included, and that the plan provides for the protection of human health and the environment, and after that review provides comments as may be necessary and appropriate. The safety plan must, at a minimum, follow the U.S. EPA's guidance document *Standard Operating Safety Guides* (Publication 9285.1-03, PB92-963414, June 1992).

TASK 2: COMMUNITY INVOLVEMENT SUPPORT AND TECHNICAL ASSISTANCE PLAN

U.S. EPA has the responsibility of developing and implementing community involvement activities for the Site. The critical community involvement planning steps performed by U.S. EPA and IEPA include conducting community interviews and developing a Community Involvement Plan. Although implementing the Community Involvement Plan is the responsibility of U.S. EPA, the Respondent[s], if directed by U.S. EPA, shall assist by providing information regarding the Site's history; participating in public meetings; assisting in preparing fact sheets for distribution to the general public; or conducting other activities approved by U.S. EPA. All PRP-conducted community involvement activities shall be planned and developed in coordination with U.S. EPA.

TAP provisions are exclusive to Superfund Alternative Sites and are not needed for sites that are on the NPL. As of 9/30/03, TAP guidance is under development and has not been finalized.

In addition to any assistance with community involvement activities, the Respondent[s] shall prepare a Technical Assistance Plan (TAP) that will provide and administer $50,000 for a qualified community group to hire Technical Advisors, independent from the Respondent[s], to help interpret and comment on Site-related documents developed under this SOW and through U.S. EPA's issuance of the Record of Decision. Within 30 days after a request by U.S. EPA, the Respondent[s] shall submit to U.S. EPA its Technical Assistance Plan for Agency approval.

As part of the TAP, the Respondent[s] shall propose methods, including an application process, minimum eligibility requirements and selection criteria for awarding, and administering the funds above.

Any eligible group shall be: 1) a group of people who may be affected by a release or threatened release a the Site; 2) incorporated as a nonprofit organization for the purposes of the Site or otherwise established as a charitable organization that operates within the geographical range of the Site and is already incorporated as a nonprofit organization; and 3) able to demonstrate its capability to adequately and responsibly manage any funds awarded. Any group is ineligible if it is: 1) a potentially responsible party (PRP) at the Site or represents such a PRP or is a group whose ability to represent the interests of the affected individuals might be limited as a result of receiving money or services from a PRP; 2) affiliated with a national organization; 3) an academic institution; 4) a political subdivision; or 5) a group established or presently sustained by government entities, a PRP, or any ineligible entity. Selection criteria should be consistent with 40 C.F.R. §35.4155. Funds may be awarded to only one qualified group at a time for purposes of this AOC and SOW.

Also as part of the TAP, Respondent[s] shall include a proposed plan for documenting the eligibility of the selected community group, and informing the group and U.S. EPA if it believes any individual member is ineligible (consistent with 40 C.F.R. §35.4030) to participate in the group. Respondent[s] shall also include a plan for informing the selected group of the activities that can and cannot be undertaken with Respondent's [s'] funds. The lists of eligible and ineligible activities should be consistent with 40 C.F.R. §35.4070 and §35.4075, respectively. The TAP shall also include a proposal for offering and, if accepted, transferring up to $5,000 to the selected group to cover its estimated need for funds for an initial start-up period.

Also as part of the TAP, Respondent[s] shall include a plan for providing assistance to the selected community group in the solicitation for an independent Technical Advisor. As long as the group documents its selection and the advisor selected by the group satisfies the requirements specified in 40 C.F.R. §35.4190 and §35.4195, Respondent[s] shall accept the group's choice. Finally, Respondent[s] shall include a proposed plan for negotiating a contract with the selected community organization and the independent Technical Advisor. The contract shall specify the

duties of the Respondent[s], community group, and Technical Advisor, respectively, and establish a dispute resolution process. Respondent[s] should consider using the attached draft contract as a starting point for negotiations. Respondent[s] shall notify U.S. EPA of any differences between the final contract and the attached draft contract.

The Respondent[s] may hire a third party to coordinate and administer the TAP (hereinafter referred to as the TAP Coordinator). However, any such TAP Coordinator shall be approved by U.S. EPA. It is the Respondent's [s'] burden to demonstrate that the TAP Coordinator is qualified to perform this task. If the Respondent[s] opts to hire a TAP Coordinator, then it shall submit in writing that person's name, title, and qualifications to U.S. EPA within 15 days of the effective date of this Consent Order. Additionally, the Respondent[s] shall designate within 15 days of the effective date of this Consent Order an outreach coordinator who will be responsive to the public's inquiries and questions about the Site, including information about the application process and administration of the TAP. Respondent[s] shall also propose a plan for arranging for and hosting meetings between its Outreach Coordinator, the community group, the Technical Advisor, and other interested individuals.

The Respondent[s] shall provide U.S. EPA quarterly progress reports regarding the implementation of the TAP. To the extent practicable, the Respondent[s] shall: 1) select the TAP recipient; 2) release an initial $5,000 in start-up expenses; 3) confirm the Technical Advisor selection; and 4) finalize the contract with the community group and its advisor; at least by the date on which the Draft RI/FS Workplan is due to U.S. EPA.

If the Community Group demonstrates, consistent with the criteria specified in 40 C.F.R. §35.4065, that it needs additional funds for TAP activity, then Respondent[s] will provide the additional monies needed. Any unobligated funds shall revert to the Respondent[s] upon U.S. EPA's issuance of the ROD based upon the RI/FS to be conducted pursuant to this SOW.

Within 30 calendar days of U.S. EPA's approval of the TAP, the Respondent[s] shall select the TAP recipient; release $5,000 in start-up funds; confirm the selection of the Technical Advisor, and finalize an appropriate contract with the selected community representative and the Technical Advisor. In addition, the Respondent[s] shall provide U.S. EPA and IEPA with quarterly progress reports concerning the implementation of the TAP.

TASK 3: SITE CHARACTERIZATION

3.1 Investigate and Define Site Physical and Biological Characteristics

The Respondent[s] shall implement the Work Plan/Field Sampling Plan and collect data on the physical and biological characteristics of the site and its surrounding areas including the physical physiography, geology, and hydrology, and specific physical characteristics. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts and will be utilized to define potential transport pathways and human ecological receptor populations. In defining the site's physical characteristics the Respondent[s] will also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant

fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

The Respondent[s] shall provide the RPM or the entity designated by the RPM with a paper copy and an electronic copy (according to U.S. EPA Region 5 format specification) of laboratory data within the monthly progress reports and in no event later than 90 days after samples are shipped for analysis. In addition, the monthly progress reports will summarize field activities (including drilling locations, depths and field notes if requested by RPM), problems encountered, solutions to problems, and upcoming field activities.

3.2 Define Sources of Contamination

The Respondent[s] shall locate each source of contamination. For each location, Respondent[s] shall determine the areal extent and depth of contamination by sampling at incremental depths on a sampling grid. Respondent[s]shall determine the physical characteristics and chemical constituents and their concentrations for all known and discovered sources of contamination. The Respondent[s] shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QAPP and DQOs. Defining the source of contamination will include analyzing the potential for contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

3.3 Describe the Nature and Extent/Fate and Transport of Contamination

The Respondent[s] shall gather information to describe the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, the Respondent[s] will utilize the information on site physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. The Respondent[s] will then implement an iterative monitoring program and any study program identified in the work plan or sampling plan such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at site can be determined. In addition, the Respondent[s] shall gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of contamination are known to the level of contamination established in the QAPP and DQOs.

3.3.1 Evaluate site characteristics

The Respondent[s] shall analyze and evaluate the data to describe: (1) site physical and biological characteristics; (2) contaminant source characteristics; (3) nature and extent of contamination; and (4) contaminant fate and transport. Results of the site physical characteristics, source characteristics, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The Respondents shall evaluate the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is

appropriate, such models shall be identified to U.S. EPA in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to U.S. EPA together with a sensitivity analysis. The RI data shall be presented electronically according to U.S. EPA Region 5 format requirements. Analysis of data collected for site characterization will meet the DQOs developed in the QAPP and stated in the FSP (or revised during the RI).

3.3.2. Baseline Human Health Risk Assessment

As an attachment to the RI Report, the Respondent[s] shall submit a Baseline Human Health Risk Assessment Report to U.S. EPA, with a copy to the **state agency**, for review and approval by U.S. EPA. The Respondent[s] shall conduct the baseline risk assessment to determine whether site contaminants pose a current or potential risk to human health and the environment in the absence of any remedial action. The major components of the Baseline Risk Assessment include contaminant identification, exposure assessment, toxicity assessment, and human health and ecological risk characterization.

Respondent[s] shall conduct a baseline human health risk assessment that focuses on actual and potential risks to persons coming into contact with on-site hazardous substances, pollutants or contaminants as well as risks to the nearby residential, recreational and industrial worker populations from exposure to hazardous substances, pollutants or contaminants in groundwater, soils, sediments, surface water, air, and ingestion of contaminated organisms in nearby, impacted ecosystems. The human health risk assessment shall define central tendency and reasonable maximum estimates of exposure for current land use conditions and reasonable future land use conditions. The human health risk assessment shall use data from the Site and nearby areas to identify the contaminants of concern (COC), provide an estimate of how and to what extent human receptors might be exposed to these COCs, and provide an assessment of the health effects associated with these COCs. The human health risk assessment shall project the potential risk of health problems occurring if no cleanup action is taken at the Site and/or nearby areas, and establish target action levels for COCs (carcinogenic and non-carcinogenic).

Respondent[s] shall conduct the human health risk assessment in accordance with U.S. EPA guidance including, at a minimum: "Risk Assessment Guidance for Superfund (RAGS), Volume I - Human Health Evaluation Manual (Part A)," Interim Final (EPA-540-1-89-002)," OSWER Directive 9285.7-01A; December 1, 1989; and "Risk Assessment Guidance for Superfund (RAGS), Volume I - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments)," Interim, (EPA 540-R-97-033), OSWER 9285.7-01D, January, 1998 or subsequently issued guidance.

Respondent[s] shall also conduct the human health risk assessment in accordance with the following additional guidance found in the following ISAPI OSWER directives:

1) "Clarification to the 1994 Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities," OSWER Directive 9200.4-27; August, 1998,

2) "Implementation of the Risk Assessment Guidance for Superfund (RAGS) Volume I - Human Health Evaluation Manual, (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments) (Interim)," OSWER Directive 9285.7-01D-1; December 17, 1997,

3) "Soil Screening Guidance: Technical Background Document," OSWER Directive 9355.4-17A; May 1, 1996 and "Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER Directive 9355.4; March 24, 2001,

4) "Soil Screening Guidance: User's Guide," Publication 9355.4-23; April, 1996,

5) "Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities," OSWER Directive 9355.4-12; July 14, 1994,

6) "Guidance Manual for the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children," Publication 9285.7-15-1; February, 1994, and associated, clarifying Short Sheets on IEUBK Model inputs, including but not limited to OSWER 9285.7-32 through 34, as listed on the OSWER lead internet site at www.epa.gov/superfund/programs/lead/prods.htm,

7) "Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children," Version 0.99D, NTIS PB94-501517, 1994 or "Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children," Windows© version, 2001,

8) "Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual: (Part B, Development of Risk-based Preliminary Remediation Goals)," Interim, OSWER Directive 9285.7-01B; December, 1991,

9) "Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors," OSWER Directive 9285.6-03; March 25, 1991, and

10) "Exposure Factors Handbook," Volumes I, II, and III; August 1997 (EPA/600/P-95/002Fa,b,c).

Respondent[s] shall also comply with the guidance on assessing human health risk associated with adult exposures to lead in soil as found in the following document: "Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil," December, 1996. This document may be downloaded from the Internet at the following address: www.epa.gov/superfund/programs/lead/prods.htm.

Respondent[s] shall also comply with the "Superfund Lead- Contaminated Residential Sites Handbook," December 2002 by the U.S. EPA Lead Sites Workgroup.

Additional applicable or relevant guidance may be used only if approved by U.S. EPA.

Respondents shall prepare the Human Health Risk Assessment Report according to the guidelines outlined below:

- Hazard Identification (sources). The Respondent[s] shall review available information on the hazardous substances present at the site and identify the major contaminants of concern.
- Dose-Response Assessment. The Respondent[s] shall select contaminants of concern based on their intrinsic toxicological properties.
- Conceptual Exposure/Pathway Analysis. The Respondent[s] shall identify and analyze critical exposure pathways (e.g., drinking water). The proximity of contaminants to exposure pathways and their potential to migrate into critical exposure pathways shall be assessed.
- Characterization of Site and Potential Receptors. The Respondent[s] shall identify and characterize human populations in the exposure pathways.
- Exposure Assessment. The exposure assessment will identify the magnitude of actual or potential human exposures, the frequency and duration of these exposures, and the routes by which receptors are exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for the development of acceptable exposure levels. In developing the exposure assessment, the Respondent[s] shall develop reasonable maximum estimates of exposure for both current land use conditions and potential land use conditions at the site.
- Risk Characterization. During risk characterization, Respondent[s] shall compare chemical-specific toxicity information, combined with quantitative and qualitative information from the exposure assessment, to measured levels of contaminant exposure levels and the levels predicted through environmental fate and transport modeling. These comparisons shall determine whether concentrations of contaminants at or near the site are affecting or could potentially affect human health.
- Identification of Limitations/Uncertainties. The Respondent[s] shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the report.
- Site Conceptual Model. Based on contaminant identification, exposure assessment, toxicity assessment, and risk characterization, the Respondent[s] shall develop a conceptual model of the site.

3.3.2. Baseline Ecological Risk Assessment

As an attachment to the RI Report, the Respondent[s] shall submit a Baseline Ecological Risk Assessment Report to U.S. EPA, with a copy to IEPA, for review and approval by U.S. EPA. In the Ecological Risk Assessment Report, the Respondent[s] shall evaluate and assess the risk to the environment posed by site contaminants. Respondent[s] shall prepare the Ecological Risk Assessment Report in accordance with U.S. EPA guidance including, at a minimum: "Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments, (EPA-540-R-97-006, June 1997), OSWER Directive 9285.7-25 and shall follow the guidelines outlined below:

- Hazard Identification (sources). The Respondent[s] shall review available information on the hazardous substances present at the site and identify the major contaminants of concern.
- Dose-Response Assessment. The Respondent[s] must select contaminants of concern based on their intrinsic toxicological properties.
- Conceptual Exposure/Pathway Analysis. Critical exposure pathways (e.g., surface water) shall be identified and analyzed. The proximity of contaminants to exposure pathways and their potential to migrate into critical exposure pathways shall be assessed.
- Characterization of Site and Potential Receptors. The Respondent[s] shall identify and characterize environmental exposure pathways.
- Selection of Chemicals, Indicator Species, and End Points. In preparing the assessment, the Respondent[s] will select representative chemicals, indicator species (species that are especially sensitive to environmental contaminants), and end points on which to concentrate.
- Exposure Assessment. In the exposure assessment, Respondent[s] must identify the magnitude of actual or environmental exposures, the frequency and duration of these exposures, and the routes by which receptors are exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for the development of acceptable exposure levels. In developing the exposure assessment, the Respondent[s] shall develop reasonable maximum estimates of exposure for both current land use conditions and potential land use conditions at the site.
- Toxicity Assessment/Ecological Effects Assessment. The toxicity and ecological effects assessment will address the types of adverse environmental effects associated with chemical exposures, the relationships between magnitude of exposures and adverse effects, and the related uncertainties for contaminant toxicity (e.g., weight of evidence for a chemical's carcinogenicity).
- Risk Characterization. During risk characterization, Respondent[s] shall compare chemical-specific toxicity information, combined with quantitative and qualitative information from the exposure assessment, to measured levels of contaminant exposure levels and the levels predicted through environmental fate and transport modeling. These comparisons shall determine whether concentrations of contaminants at or near the site are affecting or could potentially affect the environment.
- Identification of Limitations/Uncertainties. The Respondent[s] shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the report.
- Site Conceptual Model. Based on contaminant identification, exposure assessment, toxicity assessment, and risk characterization, the Respondent[s] shall develop a conceptual model of the site.

3.4 Current and Future Land Uses and Reuse Assessment

As an Attachment to the RI Report, Respondents shall submit a Memorandum to U.S. EPA for review and approval that evaluates the current and reasonably anticipated future land uses at the Site. The Memorandum shall identify: 1) past uses at the site including title and lien information; 2) current uses of the site and neighboring areas; 3) the owner's plans for the site following cleanup and any prospective purchasers; 4) applicable zoning laws and ordinance; 5) current zoning; 6) applicable local area land use plans, master plans and how they affect the site; 7) existing local restrictions on property; 8) property boundaries; 9) groundwater use determinations, wellhead protection areas, recharge areas and other areas identified in the state's Comprehensive Ground Water Protection Program; 10) Flood plains, wetland, or endangered or threatened species; and 11) utility rights of way.

If U.S. EPA, in its sole discretion, determines that a Reuse Assessment is necessary, Respondent[s] will perform the Reuse Assessment in accordance with U.S. EPA guidance, including, but not limited to: "Reuse Assessments: A Tool To Implement The Superfund Land Use Directive, OSWER 9355.7-06P, June 4, 2001 upon request of U.S. EPA. The Reuse Assessment should provide sufficient information to develop realistic assumptions of the reasonably anticipated future uses for the Site.

TASK 4: REMEDIAL INVESTIGATION (RI) REPORT

Within ___ calendar days following the approval of the Final RI/FS Planning Documents (Task 1) (unless otherwise approved by U.S. EPA in the Final RI/FS Planning Documents), the Respondent[s] shall submit to U.S. EPA, with a copy to IEPA, for review and approval by U.S. EPA, an RI Report addressing all of the Site and nearby areas. The RI Report shall be consistent with the AOC and this SOW. The RI Report shall accurately establish the site characteristics such as media contaminated, extent of contamination, and the physical boundaries of the contamination. Pursuant to this objective, the Respondent[s] shall obtain only the essential amount of detailed data necessary to determine the key(s) contaminant(s) movement and extent of contamination. The key contaminant(s) must be selected based on persistence and mobility in the environment and the degree of hazard. The key contaminant(s) identified in the RI shall be evaluated for receptor exposure and an estimate of the key contaminant(s) level reaching human or environmental receptors must be made. The Respondent[s] shall use existing standards and guidelines such as drinking-water standards, water-quality criteria, and other criteria accepted by the U.S. EPA as appropriate for the situation may be used to evaluate effects on human receptors who may be exposed to the key contaminant(s) above appropriate standards or guidelines. Respondent[s] shall complete the RI Report in accordance with the following requirements:

The Respondent[s] shall submit an RI Report to U.S. EPA for review and approval pursuant to Section 2, which includes the following:

- Executive Summary
- Site Background. The Respondent(s) shall assemble and review available facts about the regional conditions and conditions specific to the site under investigation.
- Investigation
  - Site Reconnaissance

- Field Investigation & Technical Approach
- Chemical Analysis & Analytical Methods
- Field Methodologies
- Biological
- Surface Water
- Sediment
- Soil Boring
- Soil Sampling
- Monitoring Well Installation
- Groundwater Sampling
- Hydrogeological Assessment
- Air Sampling
- Waste Investigation
- Geophysical Investigation

• Site Characteristics
  - Geology
  - Hydrogeology
  - Meteorology
  - Demographics and Land Use
  - Ecological Assessment

• Nature and Extent of Contamination
  - Contaminant Sources
  - Contaminant Distribution and Trends

• Fate and Transport
  - Contaminant Characteristics
  - Transport Processes
  - Contaminant Migration Trends

• Human Risk Assessment

  – Hazard Identification (sources)
  – Dose-Response Assessment
  – Prepare Conceptual Exposure/Pathway Analysis
  – Characterization of Site and Potential Receptors
  – Exposure Assessment
  – Risk Characterization
  – Identification of Limitations/Uncertainties
  – Site Conceptual Model

• Ecological Risk Assessment

  – Hazard Identification (sources)

- Dose-Response Assessment
- Prepare Conceptual Exposure/Pathway Analysis
- Characterization of Site and Potential Receptors
- Selection of Chemicals, Indicator Species, and End Points
- Exposure Assessment
- Toxicity Assessment/Ecological Effects Assessment
- Risk Characterization
- Identification of Limitations/Uncertainties
- Site Conceptual Model

- Summary and Conclusions

TASK 5: TREATABILITY STUDIES

If U.S. EPA or the Respondent[s] determine that treatability testing is necessary, the Respondent[s] shall conduct treatability studies as described in this Task 5 of this SOW. In addition, if applicable, the Respondent[s] shall use the testing results and operating conditions in the detailed design of the selected remedial technology. The Respondent[s] shall perform the following activities.

5.1 Determine Candidate Technologies and of the Need for Testing

The Respondent[s] shall submit a Candidate Technologies and Testing Needs Technical Memorandum, to U.S. EPA with a copy to IEPA for review and approval by U.S. EPA, that identifies candidate technologies for a treatability studies program no later than at the time of submittal of the draft RI Report. The list of candidate technologies shall cover the range of technologies required for alternatives analysis. The Respondent[s] shall determine and refine the specific data requirements for the testing program during Site characterization and the development and screening of remedial alternatives.

5.1.1 Conduct Literature Survey and Determine the Need for Treatability Testing

Within the Candidate Technologies and Testing Needs Technical Memorandum, the Respondent[s] shall conduct a literature survey to gather information on the performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. Respondent[s] shall conduct treatability studies except where Respondent[s] can demonstrate to U.S. EPA's satisfaction that they are not needed.

5.2 Treatability Testing and Deliverables

5.2.1 Treatability Testing Work Plan and Sampling and Analysis Plan (SAP)

If U.S. EPA determines that treatability testing is necessary, U.S. EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Within 30 days of a request of U.S. EPA, the Respondent[s] shall submit a Treatability Testing Work Plan and a SAP, or amendments to the

original RI/FS Work Plan, FSP and QAPP to U.S. EPA with a copy to IEPA for review and approval by U.S. EPA, that describes the Site background, the remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The Respondent[s] shall document the DQOs for treatability testing as well. If pilot scale treatability testing is to be performed, the Treatability Study Work Plan shall describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-Site, the plans shall address all permitting requirements. The requirements of SAPs are outlined in Task 1.3.2 of this SOW.

5.2.2 Treatability Study Health and Safety Plan

If the original Health and Safety Plan is not adequate for defining the activities to be performed during the treatability tests, the Respondent[s] shall submit a separate or amended Health and Safety Plan. Task 1.2.2 of this SOW provides additional information on the requirements of the Health and Safety Plan. U.S. EPA and IEPA review, but do not "approve" the Treatability Study Health and Safety Plan.

5.2.3 Treatability Study Evaluation Report

Following the completion of the treatability testing, the Respondent[s] shall analyze and interpret the testing results in a technical report to U.S. EPA and IEPA. Respondent[s] shall submit the treatability study report according to the schedule in the Treatability Study Work Plan. This report may be a part of the Site Characterization Technical Memorandum, the RI Report or submitted as a separate deliverable. The Treatability Study Evaluation Report shall evaluate each technology's effectiveness, implementability and cost, and actual results as compared with predicted results. The report shall also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK 6: DEVELOPMENT AND SCREENING OF ALTERNATIVES (Technical Memorandum)

The Respondent[s] shall develop and screen an appropriate range of remedial alternatives that will be evaluated by the Respondent[s]. This range of alternatives shall include, as appropriate, options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but which vary in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The Respondent[s] shall perform the following activities as a function of the development and screening of remedial alternatives.

6.1 Alternatives Development and Screening Deliverables

The Respondent[s] shall prepare and submit three technical memoranda for this task: a Remedial Action Objectives Technical Memorandum, an Alternative Arrays Technical Memorandum and a Comparative Analysis of Alternatives Memorandum. **[These memos can be combined into a single memo as appropriate.]**

6.1.1 Remedial Action Objectives Technical Memorandum

The Respondent[s] shall submit a Remedial Action Objectives Technical Memorandum to U.S. EPA with a copy to IEPA for review and approval by U.S. EPA. The Respondent[s] shall submit the Remedial Action Objectives Technical Memorandum at the same time as the Draft RI Report. Based on the baseline human health and ecological risk assessments, the Respondent[s] shall document the Site-specific remedial action objectives in a Remedial Action Objectives Technical Memorandum. The remedial action objectives shall specify the contaminants and media of concern, potential exposure pathways and receptors; and contaminant level or range of levels (at particular locations for each exposure route) that are protective of human health and the environment. Remedial action objectives shall be developed by considering the factors set forth in 40 C.F.R. § 300.430(e)(2)(i). The Respondent[s] shall incorporate U.S. EPA's comments on the Remedial Action Objectives Technical Memorandum in the Alternatives Screening Technical Memorandum.

6.1.2 Alternatives Screening Technical Memorandum

The Respondent[s] shall submit an Alternatives Screening Technical Memorandum to U.S. EPA with a copy to IEPA for review and approval by U.S. EPA. The Alternatives Screening Technical Memorandum shall summarize the work performed and the results of each of the above tasks, and shall include an alternatives array summary. If required by U.S. EPA, the Respondent[s] shall modify the alternatives array to assure that the array identifies a complete and appropriate range of viable alternatives to be considered in the detailed analysis. The Alternatives Screening Technical Memorandum shall document the methods, the rationale and the results of the alternatives screening process. The Respondent[s] shall incorporate U.S. EPA's comments on the Alternatives Screening Technical Memorandum in the Comparative Analysis of Alternatives Technical Memorandum. The Respondent[s] shall submit the Alternatives Screening Technical Memorandum within [ ] calendar days after receipt of U.S. EPA's comments on the Remedial Action Objectives Technical Memorandum.

6.1.2.1 Develop General Response Actions

In the Alternatives Technical Memorandum, the Respondent[s] shall develop general response actions for each medium of interest including containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the U.S. EPA-approved remedial action objectives.

6.1.2.2 Identify Areas or Volumes of Media

In the Alternatives Technical Memorandum, the Respondent[s] shall identify areas or volumes of media to which the general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The Respondent[s] shall also take into account the chemical and physical characterization of the Site.

6.1.2.3 Identify, Screen, and Document Remedial Technologies

In the Alternatives Technical Memorandum, the Respondent[s] shall identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the Site. The Respondent[s] shall refine applicable general response actions to specify remedial technology types. The Respondent[s] shall identify technology process options for each of the technology types concurrently with the identification of such technology types or following the screening of considered technology types. The Respondent[s] shall evaluate process options on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type. The Respondent[s] shall summarize and include the technology types and process options in the Alternatives Screening Technical Memorandum. Whenever practicable, the alternatives shall also consider the CERCLA preference for treatment over conventional containment or land disposal approaches.

In the Alternatives Technical Memorandum, Respondent[s] shall provide a preliminary list of alternatives to address contaminated soil, sediments, surface water, groundwater, and air contamination at the Site that shall consist of, but is not limited to, treatment technologies, removal and off-site treatment/disposal, removal and on-site disposal, and in-place containment for soils, sediments, and wastes. See 40 C.F.R. § 300.430(e)(1)-(7). The Respondent[s] shall specify the reasons for eliminating any alternatives.

6.1.2.4 Assemble and Document Alternatives

The Respondent[s] shall assemble the selected representative technologies into alternatives for each affected medium or operable unit. Together, all of the alternatives shall represent a range of treatment and containment combinations that shall address either the Site or the operable unit as a whole. The Respondent[s] shall prepare a summary of the assembled alternatives and their related ARARs for the Alternatives Screening Technical Memorandum. The Respondent[s] shall specify the reasons for eliminating alternatives during the preliminary screening process.

6.1.2.5 Refine Alternatives

The Respondent[s] shall refine the remedial alternatives to identify the volumes of contaminated media addressed by the proposed processes and size critical unit operations as necessary. The Respondent[s] shall collect sufficient information for an adequate comparison of alternatives. The Respondent[s] shall also modify the remedial action objectives for each chemical in each medium as necessary to incorporate any new human health and ecological risk assessment information presented in the Respondent's [s'] baseline human health and ecological risk

assessment reports. Additionally, the Respondent[s] shall update ARARs as the remedial alternatives are refined.

6.1.3 Conduct and Document Screening Evaluation of Each Alternative

The Respondent[s] may perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for a detailed analysis. If necessary, the Respondent[s] shall conduct the screening of alternatives to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening shall preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives shall include options that use treatment technologies and permanent solutions to the maximum extent practicable. The Respondent[s] shall prepare an Alternatives Screening Technical Memorandum that summarizes the results and reasoning employed in screening; arrays the alternatives that remain after screening; and identifies the action-specific ARARs for the alternatives that remain after screening.

TASK 7: DETAILED ANALYSIS of ALTERNATIVES (FS REPORT)

The Respondent[s] shall conduct and present a detailed analysis of remedial alternatives to provide U.S. EPA with the information needed to select a Site remedy.

7.1 Detailed Analysis of Alternatives

The Respondent[s] shall conduct a detailed analysis of the remedial alternatives for the Site. The detailed analysis shall include an analysis of each remedial option against each of the nine evaluation criteria set forth in 40 C.F.R. § 300.430(e)(9)(iii) and a comparative analysis of all options using the same nine criteria as a basis for comparison.

7.1.1 Apply Nine Criteria and Document Analysis

The Respondent[s] shall apply the nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will protect human health and the environment and meet remedial action objectives; will comply with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment and how the alternative meets each of the remedial action objectives; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance. (Note: criteria 8 and 9 are considered after the RI/FS report has been released to the general public.) For each alternative the Respondent[s] shall provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs

associated with each alternative, and (2) a discussion of the individual criterion assessment. If the Respondent[s] do not have direct input on criteria (8) state (or support agency) acceptance and (9) community acceptance, U.S. EPA will address these criteria.

7.1.2 Compare Alternatives Against Each Other and Document the Comparison of Alternatives

The Respondent[s] shall perform a comparative analysis between the remedial alternatives. That is, the Respondent[s] shall compare each alternative against the other alternatives using the evaluation criteria as a basis of comparison. U.S. EPA will identify and select the preferred alternative. The Respondent[s] shall prepare a Comparative Analysis of Alternatives Technical Memorandum which summarizes the results of the comparative analysis and fully and satisfactorily addresses and incorporates U.S. EPA's comments on the Alternatives Screening Technical Memorandum. The Respondent[s] shall incorporate U.S. EPA's comments on the Comparative Analysis of Alternatives Technical Memorandum in the draft FS Report. The Respondent[s] shall submit the Comparative Analysis of Alternatives Memorandum within [ ] calendar days after receipt of U.S. EPA's comments on the Alternatives Screening Technical Memorandum.

7.1.3. Alternatives Analysis for Institutional Controls

For any Alternatives that relies on Institutional Controls, Respondents shall include in the Alternatives Screening Technical Memorandum, Comparative Analysis of Alternative Technical Memorandum and Feasibility Study an evaluation of the following: 1) *Overall Protection of Human Health and the Environment* including what specific institutional control components will ensure that the alternative will remain protective and how these specific controls will meet remedial action objectives; 2) *Compliance with ARARs;* 3) *Long Term Effectiveness* including the adequacy and reliability of institutional controls and how long the institutional control must remain in place; 4) *Short Term Effectiveness* including the amount of time it will take to impose the Institutional Control; 5) *Implementability* including research and documentation that the proper entities (e.g., potentially responsible parties, state, local government entities, local landowners conservation organizations) are willing to enter into any necessary agreement or restrictive covenant with the proper entities and/or that laws governing the restriction exist or allow implementation of the institutional control; 6) *Cost* including the cost to implement, maintain, monitor and enforce the institutional control;7) *State and Community acceptance* of the Institutional Control.

7.2 Feasibility Study Report

Within [ ] days after receipt of U.S. EPA's comments on the Comparative Analysis of Alternatives Technical Memorandum, the Respondent[s] shall prepare and submit a draft FS Report to U.S. EPA for its review pursuant to Section 2. The FS report shall summarize the development and screening of the remedial alternatives and present the detailed analysis of remedial alternatives. In addition, the FS Report shall also include the information U.S. EPA will need to prepare relevant sections of the Record of Decision (ROD) for the Site [see Chapters 6

and 9 of U.S. EPA's *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (EPA 540-R-98-031, July 1999) for the information that is needed].

TASK 8: PROGRESS REPORTS

The Respondent[s] shall submit monthly written progress reports to U.S. EPA and the state agency concerning actions undertaken pursuant to the AOC and this SOW, beginning 30 calendar days after the effective date of the AOC, until the termination of the AOC, unless otherwise directed in writing by the RPM. These reports shall include, but not be limited to, a description of all significant developments during the preceding period, including the specific work that was performed and any problems that were encountered; a paper and electronic copies (formatted according to U.S. EPA specifications) and summary of the analytical data that was received during the reporting period; and the developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and actual or planned resolutions of past or anticipated problems. The monthly progress reports will summarize the field activities conducted each month including, but not limited to drilling and sample locations, depths and descriptions; boring logs; sample collection logs; field notes; problems encountered; solutions to problems; a description of any modifications to the procedures outlined in the RI/FS Work Plan, the FSP, QAPP or Health and Safety Plan, with justifications for the modifications; a summary of all data received during the reporting period and the analytical results; and upcoming field activities. In addition, the Respondent[s] shall provide the RPM or the entity designated by the RPM with all laboratory data within the monthly progress reports and in no event later than 60 days after samples are shipped for analysis.

EXHIBIT A
SCHEDULE FOR MAJOR DELIVERABLES

DELIVERABLE	DUE DATE
TASK 1.2.2 - RI/FS Planning Documents, including Work Plan/Field Sampling Plan, Quality Assurance Project Plan and Health and Safety Plan	RI/FS Planning documents due[___] calendar days after the effective date of the AOC. Final RI/FS Planning Documents due [ ] days after U.S. EPA notification of deficiencies pursuant to Section 2 of the SOW and Section X of the AOC.
Task 2 - Technical Assistance Plan (TAP)	TAP due [___] calendar days after the effective date of the AOC. Final TAP due [ ] calendar days after receipt of U.S. EPA's notification of deficiencies pursuant to Section 2 of the SOW and Section X of the AOC.
Task 2 - Quarterly Progress Reports on Implementation of the TAP	10 calendar days after the end of each calendar year quarter; first report due in the first full calendar year quarter after the effective date of the AOC.
Task 3 - Site Characterization Technical Communications	To be included in the monthly Progress Reports.
TASK 4 - RI Report	RI Report due ___ calendar days following U.S. EPA approval of the Final Work Plan/Field Sampling Plan. Final RI Report due [ ] calendar days after receipt of U.S. EPA's notification of deficiencies pursuant to Section 2 of this SOW and Section X of the AOC.
TASK 5.1 - Candidate Technologies and Testing Needs Technical Memorandum	___ calendar days following U.S. EPA approval of the Final Work Plan/Field Sampling Plan.
TASK 5.2.1 - Draft and Final Treatability Testing Work Plan and SAP or Amendments to the Original RI/FS Work Plan, FSP and/or QAPP.	Within __ days of request of U.S. EPA.
TASK 5.2.2 - Draft and Final Treatability Testing Health and Safety Plan or Amendment to the Original Health and Safety Plan	Within __ days of request of U.S. EPA.

DELIVERABLE	DUE DATE
TASK 5.2.3 - Draft and Final Treatability Study Evaluation Report	With the Site Characterization Technical Memorandum, the RI Report (Task 4), or as approved by U.S. EPA in the Work Plan/Field Sampling Plan.
TASK 6 - Remedial Action Objectives Technical Memorandum	With the draft RI Report (Task 4).
TASK 6 - Alternatives Screening Technical Memorandum	[ ] calendar days after receipt of U.S. EPA's U.S. EPA's comments on the Remedial Action Objectives Technical Memorandum.
TASK 6 - Comparative Analysis of Alternatives Technical Memorandum	[ ] calendar days after receipt of U.S. EPA's comments on the Alternatives Screening Technical Memorandum.
Task 7 - FS Report	FS Report due [ ] calendar days after receipt of U.S. EPA's comments on the Comparative Analysis of Alternatives Technical Memorandum. Final FS Report due [ ] calendar days after receipt of U.S. EPA's notification of deficiency on the draft FS Report pursuant to Section 2 of the SOW and Section X of the AOC.
TASK 8: Monthly Progress Reports	On the 15th day of each month or the first business day after the 15th of the month commencing 30 calendar days after the effective date of the AOC.
Miscellaneous Documents	In accordance with the submittal date provided by RPM.

EXHIBIT B
PARTIAL LIST OF GUIDANCE

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process. The majority of these guidance documents, and additional applicable guidance documents, may be downloaded from the following websites:

http://www.epa.gov/superfund/pubs.htm (General Superfund)
http://cluin.org (Site Characterization, Monitoring and Remediation)
http://www.epa.gov/ORD/NRMRL/Pubs (Site Characterization and Monitoring)
http://www.epa.gov/quality/qa_docs.html#guidance (Quality Assurance)
http://www.epa.gov/superfund/programs/risk/toolthh.htm (Risk Assessment - Human)
http://www.epa.gov/superfund/programs/risk/tooleco.htm (Ecological Risk Assessment)
http://www.epa.gov/superfund/programs/lead (Risk Assessment - Lead)
http://cfpub.epa.gov/ncea (Risk Assessment - Exposure Factors/Other)
http://www.epa.gov/nepis/srch.htm (General Publications Clearinghouse)
http://www.epa.gov/clariton/clhtml/pubtitle.html (General Publications Clearinghouse)

1. The (revised) National Contingency Plan;

2. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*, U.S. EPA, Office of Emergency and Remedial Response, OSWER Directive No. 9355.3-01, EPA/540/G-89/004, October 1988.

3. *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites*, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-91/001, February 1991.

4. *Implementing Presumptive Remedies*, U.S. EPA, Office of Emergency and Remedial Response, EPA-540-R-97-029, October 1997.

5. *Presumptive Remedy for CERCLA Municipal Landfill Sites*, U.S. EPA, OSWER Directive No. 9355.0-49FS, EPA-540-F-93-035, September 1993.

6. *Presumptive Remedies: CERCLA Landfill Caps RI/FS Data Collection Guide*, U.S. EPA, OSWER 9355.3-18FS, EPA/540/F-95/009, August 1995.

7. *Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Ground Water at CERCLA Sites*, OSWER 9283.1-12, EPA-540-R-96-023, October 1996.

8. *Field Analytical and Site Characterization Technologies Summary of Applications*, U.S. EPA, EPA-542-F-97-024, November 1997.

9. *CLU-IN Hazardous Waste Clean-Up Information World Wide Web Site*, U.S. EPA, EPA-542-F-99-002, February 1999.

10. *Field Sampling and Analysis Technology Matrix and Reference Guide*, U.S. EPA, EPA-542-F-98-013, July 1998.

11. *Subsurface Characterization and Monitoring Techniques: A Desk Reference Guide, Volumes 1 and 2*, U.S. EPA, EPA/625/R-93/003, May 1993.

12. *Use of Airborne, Surface, and Borehole Geophysical Techniques at Contaminated Sites: A Reference Guide*, U.S. EPA, EPA/625/R-92/007(a,b), September 1993.

13. *Innovations in Site Characterization: Geophysical Investigation at Hazardous Waste Sites*, U.S. EPA, EPA-542-R-00-003, August 2000.

14. *Innovative Remediation and Site Characterization Technology Resources*, U.S. EPA, OSWER, EPA-542-F-01-026b, January 2001.

15. *Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells*, U.S. EPA, EPA/600/4-89/034, 1991.

16. *Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers*, U.S. EPA, EPA-542-S-02-001, May 2002.

17. *Ground Water Issue: Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*, U.S. EPA, EPA/540/S-95/504, April 1996.

18. *Superfund Ground Water Issue: Ground Water Sampling for Metals Analysis*, U.S. EPA, EPA/540/4-89/001, March 1989.

19. *Resources for Strategic Site Investigation and Monitoring*, U.S. EPA, OSWER, EPA-542-F-010030b, September 2001.

20. *Region 5 Framework for Monitored Natural Attenuation Decisions for Groundwater*, U.S. EPA Region 5, September 2000.

21. *Ground Water Issue: Suggested Operating Procedures for Aquifer Pumping Tests*, U.S. EPA, OSWER, EPA/540/S-93/503, February 1993.

22. *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water*, U.S. EPA, EPA/600/R-98/128, September 1998.

23. *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites,* U.S. EPA, OSWER Directive 9200.4-17P, April 21, 1999.

24. *Ground Water Issue: Fundamentals of Ground-Water Modeling*, U.S. EPA, OSWER, EPA/540/S-92/005, April 1992.

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SCOPE OF WORK FOR
STREAMLINED REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
AT
LAKE CALUMET CLUSTER SITE
CHICAGO, ILLINOIS

PURPOSE:

The purpose of this Scope of Work (SOW) is to set forth requirements for the preparation of a streamlined Remedial Investigation and Feasibility Study (RI/FS). The RI shall evaluate the nature and extent of contamination resulting from the disposal/deposition of contaminants in the Lake Calumet Cluster Site as defined _____ and also assess the risk from this contamination on human health and the environment. The FS Report shall evaluate alternatives for addressing the impact to human health and/or the environment from the contamination at Cluster Site. The RI and FS Reports shall be conducted, at a minimum, consistent with the "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (U.S. EPA, Office of Emergency and Remedial Response, October, 1988) and any other guidances that U.S. EPA uses in conducting a RI/FS, as well as any additional requirements in the administrative order. The Respondents shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RI/FS at the Cluster Site, except as otherwise specified herein.

At the completion of the RI/FS, U.S. EPA will be responsible for the selection of a Site remedy and will document this selection in a Record of Decision (ROD). The remedial action selected by U.S. EPA will meet the cleanup standards specified in CERCLA Section 121. That is, the selected remedial action will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final RI/FS reports, as adopted by U.S. EPA, and the risk evaluation/assessment will, with the administrative record, form the basis for the selection of the site's remedy and will provide the information necessary to support the development of the ROD.

As specified in CERCLA Section 104(a)(1), as amended by SARA, U.S. EPA will provide oversight of the Respondents' activities throughout the RI/FS, including all field sampling activities. The Respondents will support U.S. EPA's initiation and conduct of activities related to the implementation of oversight activities.

SCOPE:
The tasks to be completed as part of this RI/FS are:

Task 1. RI/FS Support Sampling Plan
Task 2. Remedial Investigation
Task 3. RI/FS Report
Task 4. Progress Reports

TASK 1: RI/FS SUPPORT SAMPLING PLAN

Within 30 calendar days of the effective date of the Administrative Order, Respondents shall submit a Sampling Plan to U.S. EPA and Illinois EPA that addresses all data acquisition activities. The objective of this RI/FS support sampling is to further determine the extent of contamination at the Site beyond that already identified by previous site investigations. The plan shall contain a description of equipment specifications, required analyses, sample types, and sample locations and frequency. The plan shall address specific hydrologic, hydrogeologic, and air transport characterization methods including, but not limited to, geologic mapping, geophysics, field screening, drilling and well installation, flow determination, and soil/water/sediment/waste sampling to determine extent of contamination.

Respondents shall identify the data requirements of specific remedial technologies that may be necessary to evaluate remedial activities in the RI/FS and the Respondents shall provide a schedule stating when events will take place and when deliverables will be submitted.

The RI/FS Support Sampling Plan shall include the following information:

A. Site Background

A brief summary of the Site location, general Site physiography, hydrology and geology shall be included. A summary description of the data already available shall be included which will highlight the areas of known contamination and the levels detected. Tables shall be included to display the minimum and maximum levels of detected contaminants across the Site.

B. Data Gap Description

Respondents shall make an analysis of the currently available data to determine the areas of the Site which require additional data in order to define the extent of contamination for purposes of implementing a remedial action. A description of the number, types, and locations of additional samples to be collected shall be included in this section of the sampling plan.

Descriptions of the following activities shall also be included:

i. Waste Characterization

Respondents shall include a program for characterizing the waste materials at the Site. This shall include an analysis of current information/data on past disposal practices at the Site. For buried wastes, test pits/trenches and deep soil borings shall be proposed in the plan to determine waste depths and volume and to determine the extent of cover over fill areas. Soil gas surveys shall also be proposed for the areas on and around fill areas of the site. Geophysical characterization methods, such as ground penetrating radar or magnetometry, to further delineate potential "hot spot" drum removal areas shall also be included.

ii. Hydrogeologic Investigation

The plan shall include the degree of hazard, the mobility of pollutants, discharges/recharge areas, regional and local flow direction and quality, and local uses of groundwater. The plan shall also develop a strategy for determining horizontal and vertical distribution of contaminants and may include other hydraulic tests such as slug tests, and grain size analysis to assist in determining future potential remediation options. Upgradient samples shall be included in the plan.

iii. Soils and Sediments Investigation

Respondents shall include a program to determine the extent of contamination of surface and subsurface soils at the Site. The plan shall also determine the extent, including depth, of contamination of sediments in the Indian Ridge Marsh. Samples of any leachate from the areas described as fill shall also be collected.

iv. Surface Water Investigation

Respondents shall include a program to determine the areas of surface water contamination in the Indian Ridge Marsh.

v. Air Investigation

Respondents shall include a program to determine the extent of atmospheric contamination from the various source areas at the Site. The program shall address the tendency of the substances identified through the waste characterization (i.e., PCBs) to enter the atmosphere, local wind patterns, and the degree of hazard.

vi. Ecological Assessment

Respondents shall include a plan for collecting data for the purpose of assessing the impact, if any, to aquatic and terrestrial ecosystems within and adjacent to Cluster Site, including within the Indian Ridge Marsh, as a result of the disposal, release and migration of contaminants. The plan shall include a description of the ecosystems affected, an evaluation of toxicity, an assessment of endpoint organisms, and the exposure pathways. The plan shall also include a description of any toxicity testing or trapping to be included as part of the assessment. The ecological assessment shall be conducted in accordance with U.S. EPA guidance, including Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments (June 5, 1997; EPA 540-R-97-006).

vii. Pilot Tests

Respondents shall include a program for any pilot test(s) necessary to determine the implementability and effectiveness of technologies where sufficient information is not otherwise available.

C. Sampling Procedures

Respondents shall include a description of the depths of sampling, parameters to be analyzed, equipment to be used, decontamination procedures to be followed, sample quality assurance, data quality objectives and sample management procedures to be utilized in the field. All sampling and analyses performed shall conform to U.S. EPA direction, approval, and guidance regarding sampling, quality assurance/quality control ("QA/QC"), data validation, and chain of custody procedures. Respondents shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with U.S. EPA guidance.

Upon request by U.S. EPA, Respondents shall have such a laboratory analyze samples submitted by U.S. EPA for quality assurance monitoring. Respondents shall provide to U.S. EPA the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis. Respondents shall also ensure provision of analytical tracking information consistent with OSWER Directive No. 9240.0-2B, Extending the Tracking of Analytical Services to PRP-Lead Superfund Sites.

Upon request by U.S. EPA, Respondents shall allow U.S. EPA or its authorized representatives to take split and/or duplicate samples of any samples collected by Respondents or their contractors or agents. Respondents shall notify U.S. EPA not less than 10 business days in advance of any sample collection activity. U.S. EPA shall have the right to take any additional samples that it deems necessary.

D. Health and Safety Plan

Respondents shall prepare a Site safety plan which is designed to protect on-site personnel, area residents and nearby workers from physical, chemical and all other hazards posed by this sampling event. The safety plan shall develop the performance levels and criteria necessary to address the following areas:

- General requirements
- Personnel
- Levels of protection
- Safe work practices and safe guards
- Medical surveillance
- Personal and environmental air monitoring
- Personal hygiene
- Decontamination - personal and equipment
- Site work zones
- Contaminant control
- Contingency and emergency planning (including response to fires/explosions)
- Logs, reports and record keeping

The safety plan shall, at a minimum, follow U.S. EPA guidance document Standard Operating Safety Guides (Publication 9285.1-03, PB92-963414, June 1992), and all OSHA requirements as outlined in 29 CFR 1910.

E. Schedule

Respondents shall include a schedule which identifies timing for initiation and completion of all tasks to be completed as part of this RI/FS Support Sampling Plan.

TASK 2: REMEDIAL INVESTIGATION

Respondents shall conduct the Remedial Investigation according to the U.S. EPA approved Sampling Plan and schedule. Respondents shall coordinate activities with U.S. EPA's Remedial Project Manager (RPM). Respondents shall provide the RPM with all laboratory data.

TASK 3: REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)

Within 180 calendar days of the collection of the last field sample as part of the Remedial Investigation (Task 2) (as designated by the U.S. EPA RPM), Respondents shall submit to U.S. EPA for approval a draft RI/FS report addressing the Lake Calumet Cluster Site. The RI/FS shall be consistent with the administrative order and this SOW. The RI/FS shall be completed in accordance with the following requirements:

1 Executive Summary

2 Site Characterization

2.1 Site Description and Background
2.1.1 Site Location and Physical Setting
2.1.2 Present and Past Facility Operations and Disposal Practices
2.1.2 Geology/Hydrology/Hydrogeology
2.1.3 Current and past groundwater usage in the site area
2.1.4 Surrounding Land Use and Populations
2.1.5 Sensitive Ecosystems
2.1.6 Meteorology/Climatology

2.2 Groundwater Fate and Transport

- Contaminant Characteristics
- Groundwater Fate and Transport Processes
- Groundwater Contaminant Migration Trends
- Groundwater Modeling

2.3 Previous Removal/Remedial Actions
2.4 Source, Nature, and Extent of Contamination
2.5 Analytical Data
2.6 Human Health Risk Assessment
2.7 Ecological Risk Assessment

3 Identification of Remedial Action Objectives

3.1 Determination of Remedial Action Scope
3.2 Determination of Remedial Action Schedule
3.3 Identification of and Compliance with ARARs

4 Identification and Analysis of Remedial Action Alternatives

5 Detailed Analysis of Alternatives

5.1 Effectiveness
5.1.1 Overall Protection of Public Health and the Environment
5.1.2 Compliance with ARARs and Other Criteria, Advisories, and Guidance
5.1.3 Long-Term Effectiveness and Permanence
5.1.4 Reduction of Toxicity, Mobility, or Volume

Through Treatment
5.1.5 Short-Term Effectiveness

5.2 Implementability
5.2.1 Technical Feasibility
5.2.2 Administrative Feasibility
5.2.3 Availability of Services and Materials
5.2.4 State and Community Acceptance

5.3 Cost
5.3.1 Direct Capital Costs
5.3.2 Indirect Capital Costs
5.3.3 Long-Term Operation and Maintenance

6 Comparative Analysis of Remedial Action Alternatives

7 Schedule for RI/FS Submission

RI/FS Outline:

1 Executive Summary

The Executive Summary shall provide a general overview of the contents of the RI/FS. It shall contain a brief discussion of the Site and the current and/or potential threat posed by conditions at the Site.

2 Site Characterization

The RI/FS shall summarize available data on the physical, demographic, and other characteristics of the Site and the surrounding areas. Specific topics which shall be addressed in the site characterization are detailed below. The site characterization shall concentrate on those characteristics necessary to evaluate and select an appropriate remedy.

2.1 Site Description and Background

The site description includes current and historical information. The following types of information shall be included, where available and as appropriate, to the site-specific conditions and the scope of the remedial action.

2.1 Site Description and Background

2.1.1 Site Location and Physical Setting
2.1.2 Present and Past Facility Operations and Disposal Practices
2.1.2 Geology/Hydrology/Hydrogeology
2.1.3 Current and past groundwater usage in the site area
2.1.4 Surrounding Land Use and Populations
2.1.5 Sensitive Ecosystems
2.1.6 Meteorology/Climatology

2.2 Previous Removal Actions

The site characterization section shall also describe any previous removal and remedial actions at the Site. Previous information, if relevant, shall be organized as follows:

* The scope and objectives of the previous removal action(s)
* The amount of time spent on the previous removal action(s)
* The nature and extent of hazardous substances, pollutants, or contaminants treated or controlled during the previous removal action(s) (including all monitoring conducted)
* The technologies used and/or treatment levels used for the previous removal action(s).

2.3 Source, Nature and Extent of Contamination

This section shall summarize the available site characterization data for Sauget Area 2, including the locations of the hazardous substances, pollutants, or contaminants; the quantity, volume, size or magnitude of the contamination; and the physical and chemical attributes of the hazardous pollutants or contaminants.

2.4 Analytical Data

This section shall present the available data, including, but not limited to, soil, groundwater, surface water, sediments, and air. This section should discuss any historical data gaps that were identified, and the measures taken to develop all necessary additional data.

2.5 Human Health Risk Assessment

The risk assessment shall focus on actual and potential risks to persons coming into contact with on-site contaminants as well as risks to the surrounding residential and industrial worker populations from exposure to contaminated soils, sediments, surface water, air, and ingestion of contaminated organisms in surrounding impacted ecosystems. Reasonable maximum estimates of exposure shall be defined for both current land use

conditions and reasonable future land use conditions. It shall use data from the Site to identify the chemicals of concern, provide an estimate of how and to what extent human receptors might be exposed to these chemicals, and provide an assessment of the health effects associated with these chemicals. The evaluation shall project the potential risk of health problems occurring if no cleanup action is taken at the Site and establish target action levels for COCs (carcinogenic and non-carcinogenic). The risk evaluation shall be conducted in accordance with U.S. EPA guidance including, at a minimum: Risk Assessment Guidance for Superfund (RAGS) (EPA/540/1-89/002, December 1989) and RAGS Part D (EPA 540/R/97/033, January 1998). The risk assessment shall also include the following elements:

- Hazard Identification (sources). The Respondents shall review available information on the hazardous substances present at the Site and identify the major contaminants of concern.

- Dose-Response Assessment. Contaminants of concern should be selected based on their intrinsic toxicological properties.

- Conceptual Exposure/Pathway Analysis.

- Characterization of Site and Potential Receptors.

- Exposure Assessment. Respondents shall develop reasonable maximum estimates of exposure for both current land use conditions and potential land use conditions at the Site.

- Risk Characterization.

- Identification of Limitations/Uncertainties.

2.6 Ecological Risk Assessment

The ecological risk assessment shall be conducted in accordance with U.S. EPA guidance including, at a minimum: Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments, (EPA/540/R/97/006, June 1997).

The ecological risk assessment shall describe the data collection activities conducted as part of Task 1(B)(vi) as well as the following information:

- Hazard Identification (sources). The Respondents shall review available information on the hazardous substances present at and adjacent to the Site and identify the major contaminants of concern.

- Dose-Response Assessment. Contaminants of concern should be selected based on their intrinsic toxicological properties.

- Prepare Conceptual Exposure/Pathway Analysis.

- Characterization of Site and Potential Receptors.

- Select Chemicals, Indicator Species, and End Points. In preparing the assessment, the Respondents shall select representative chemicals, indicator species (species that are especially sensitive to environmental contaminants), and end points on which to concentrate.

- Exposure Assessment. The exposure assessment will identify the magnitude of actual exposures, the frequency and duration of these exposures, and the routes by which receptors are exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for the development of acceptable exposure levels.

- Toxicity Assessment/Ecological Effects Assessment. The toxicity and ecological effects assessment will address the types of adverse environmental effects associated with chemical exposures, the relationships between magnitude of exposures and adverse effects, and the related uncertainties for contaminant toxicity (e.g., weight of evidence for a chemical's carcinogenicity).

- Risk Characterization. During risk characterization, chemical-specific toxicity information, combined with quantitative and qualitative information from the exposure assessment, shall be compared to measured levels of contaminant exposure levels and the levels predicted through environmental fate and transport modeling. These comparisons shall determine whether concentrations of contaminants at or near the Site are affecting or could potentially affect the environment.

- Identification of Limitations/Uncertainties. Respondents shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the report.

3 Identification of Remedial Action Objectives

The RI/FS shall develop remedial and, where appropriate, removal action objectives, taking into consideration the following factors:

* Prevention or abatement of actual or potential exposure to nearby human populations, (including workers), animals, or the food chain from hazardous substances, pollutants, or contaminants;

* Prevention or abatement of actual or potential contamination of drinking water supplies and ecosystems;

* Stabilization or elimination of hazardous substances in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release;

* Treatment or elimination of hazardous substances, pollutants, or contaminants in soils or sediments that may migrate;

* Elimination of threat of fire or explosion;

* Acceptable chemical-specific contaminant levels, or range of levels, for all exposure routes.

* Mitigation or abatement of other situations or factors that may pose threats to public health, welfare, or the environment.

3.1 Determination of Remedial Action Scope

The RI/FS shall define the broad scope and specific short-term and long-term objectives of the remedial action and address the protectiveness of the remedial action.

3.2 Determination of Remedial Action Schedule

The general schedule for remedial action and, where appropriate, removal activities shall be developed, including both the start and completion time for the remedial action.

3.3 Identification of and Compliance with ARARs

The RI/FS shall identify all applicable, relevant and appropriate requirements at both the federal and state levels that will apply to the remedial action. The RI/FS shall also describe how the ARARs will be met.

4 Identification and Analysis of Remedial Action Alternatives

Based on the analysis of the nature and extent of contamination and on the cleanup objectives developed in the previous section, a limited number of alternatives appropriate for addressing the remedial action objectives shall be identified and assessed. Whenever practicable, the alternatives shall also consider the CERCLA preference for treatment over conventional containment or land disposal approaches.

The use of presumptive remedy guidance, if appropriate and applicable to any of the disposal areas of the Sauget Area 2 Site, may also provide an immediate focus to the identification and analysis of alternatives. This guidance includes, but is not limited to: Implementing Presumptive Remedies (EPA 540-R-97-029, October 1997). Presumptive remedies involve the use of remedial technologies that have been consistently selected at similar sites or for similar contamination.

A limited number of alternatives, including any identified presumptive remedies, shall be selected for detailed analysis. Each of the alternatives shall be described with enough detail so that the entire treatment process can be understood. Technologies that may apply to the media or source of contamination shall be listed in the RI/FS.

The preliminary list of alternatives to address the Sauget Area 2 Site shall consist of, but is not limited to, treatment technologies (i.e., thermal methods), removal and off-site treatment/disposal, removal and an on-site disposal, and in-place containment for soils, sediments and wastes.

5 Detailed Analysis of Alternatives

Defined alternatives are evaluated against the short- and long-term aspects of three broad criteria: effectiveness, implementability, and cost.

5.1 Effectiveness

The effectiveness of an alternative refers to its ability to meet the objective regarding the scope of the remedial action. The "Effectiveness" discussion for each alternative shall evaluate the degree to which the technology would mitigate threats to public health and the environment. Criteria to be considered include:

5.1.1 Overall Protection of Public Health and the Environment

How well each alternative protects public health and the environment shall be discussed in a consistent manner. Assessments conducted under other evaluation criteria, including long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs shall be included in the

discussion. Any unacceptable short-term impacts shall be identified. The discussion shall focus on how each alternative achieves adequate protection and describe how the alternative will reduce, control, or eliminate risks at the Site through the use of treatment, engineering, or institutional controls.

5.1.2 Compliance with ARARs and Other Criteria, Advisories, and Guidance

The detailed analysis shall summarize which requirements are applicable or relevant and appropriate to an alternative and describe how the alternative meets those requirements. A summary table may be employed to list potential ARARs. In addition to ARARs, other Federal or State advisories, criteria, or guidance to be considered (TBC) may be identified.

5.1.3 Long-Term Effectiveness and Permanence

This evaluation assesses the extent and effectiveness of the controls that may be required to manage risk posed by treatment of residuals and/or untreated wastes at the Site. The following components shall be considered for each alternative: magnitude of risk, and, adequacy and reliability of controls.

5.1.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

Respondents' analysis shall address U.S. EPA's policy of preference for treatment including an evaluation based upon the following subfactors for a particular alternative:

* The treatment process(es) employed and the material(s) it will treat
* The amount of the hazardous or toxic materials to be destroyed or treated
* The degree of reduction expected in toxicity, mobility, or volume
* The degree to which treatment will be irreversible
* The type and quantity of residuals that will remain after treatment
* Whether the alternative will satisfy the preference for treatment

5.1.5 Short-Term Effectiveness

The short-term effectiveness criterion addresses the effects of the alternative during implementation before the remedial objectives have been met. Alternatives shall also be evaluated with respect to their effects on human health and the environment following implementation. The following factors shall be addressed as appropriate for each alternative:

* Protection of the Community
* Protection of the Workers

* Environmental Impacts
* Time Until Response Objectives are Achieved

5.2 Implementability

This section is an assessment of the implementability of each alternative in terms of the technical and administrative feasibility and the availability of the goods and services necessary for each alternative's full execution. The following factors shall be considered under this criterion:

5.2.1 Technical Feasibility

The degree of difficulty in constructing and operating the technology; the reliability of the technology, the availability of necessary services and materials; the scheduling aspects of implementing the alternatives during and after implementation; the potential impacts on the local community during construction operation; and the environmental conditions with respect to set-up and construction and operation shall be described. Potential future removal actions shall also be discussed. The ability to monitor the effectiveness of the alternatives may also be described.

5.2.2 Administrative Feasibility

The administrative feasibility factor evaluates those activities needed to coordinate with other offices and agencies. The administrative feasibility of each alternative shall be evaluated, including the need for off-site permits, adherence to applicable non-environmental laws, and concerns of other regulatory agencies. Factors that shall be considered include, but are not limited to, the following: statutory limits, permits and waivers.

5.2.3 Availability of Services and Materials

The RI/FS must determine if off-site treatment, storage, and disposal capacity, equipment, personnel, services and materials, and other resources necessary to implement an alternative shall be available in time to maintain the remedial schedule.

5.2.4 State and Community Acceptance

State and Community Acceptance will be considered by U.S. EPA before a final remedial action is decided upon. Respondents need only mention in the RI/FS

that U.S. EPA will consider and address State and community acceptance of an alternative when making a recommendation and in the final selection of the alternative in the ROD.

5.3 Cost

Each alternative shall be evaluated to determine its projected costs. The evaluation should compare each alternative's capital and operation and maintenance costs. The present worth of alternatives should be calculated.

5.3.1 Direct Capital Costs

Costs for construction, materials, land, transportation, analysis of samples, treatment shall be presented.

5.3.2 Indirect Capital Costs

Cost for design, legal fees, permits shall be presented.

5.3.3 Long-Term Operation and Maintenance Costs

Costs for maintenance and long-term monitoring shall be presented.

6 Comparative Analysis of Remedial Action Alternatives

Once remedial action alternatives have been described and individually assessed against the evaluation criteria described in Section 5, above, a comparative analysis shall be conducted to evaluate the relative performance of each alternative in relation to each of the criteria. The purpose of the analysis shall be to identify advantages and disadvantages of each alternative relative to one another so that key trade offs that would affect the remedy selection can be identified.

7 Schedule for RI/FS Submission

Within 30 calendar days following the collection of the last field sample as part of the Remedial Investigation (Task 2), Respondents shall present at a meeting the alternatives to undergo a more detailed analysis. A draft RI/FS shall be submitted to U.S. EPA and Illinois EPA within 180 calendar days following the collection of the last field sample as part of the Remedial Investigation (Task 2). The amended RI/FS, if required, shall be submitted to U.S. EPA and Illinois EPA within 21 calendar days of the receipt of U.S. EPA's comments on the draft RI/FS.

Following U.S. EPA approval of the RI/FS, U.S. EPA will issue a Proposed Plan to the public wherein U.S. EPA will propose one, or a combination, of the alternatives evaluated in the FS. Public comments will be solicited and evaluated before U.S. EPA makes a final decision on a remediation plan. The final decision will be documented in the ROD for the Sauget Area 2 Site.

TASK 6: PROGRESS REPORTS

Respondents shall submit a monthly written progress report to U.S. EPA and Illinois EPA concerning actions undertaken pursuant to the Order and this SOW, beginning 30 calendar days after the effective date of the Order, until termination of the Order, unless otherwise directed in writing by the RPM. These reports shall describe all significant developments during the preceding period, including the work performed and any problems encountered, analytical data received during the reporting period, and developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

SCHEDULE FOR MAJOR DELIVERABLES

Deliverable	Deadline
TASK 1: Draft RI/FS Support Sampling Plan	30 calendar days after effective date of Order
TASK 1: Final RI/FS Support Sampling Plan	21 calendar days after receipt of U.S. EPA comments
TASK 3: Draft RI/FS Report	180 calendar days following collection of last field sample as part of RI (Task 2). To be designated by RPM
TASK 3: Final RI/FS Report	21 calendar days after receipt of U.S. EPA comments on draft RI/FS Report
TASK 4: Monthly Progress Reports	10th business day of each month (Commencing 30 days after effective date of Order)

Miscellaneous Documents	In accordance with submittal date provided by RPM